

STERLING RECYCLING FACILITY

LOCATED IN THE NW1/4 OF THE NW1/4 OF SECTION 4 & THE N1/2 OF SECTION 5, GRADING AND EROSION CONTROL PLAN

COUNTY OF EL PASO, STATE OF COLORADO

GRADING AND EROSION CONTROL STANDARD NOTES

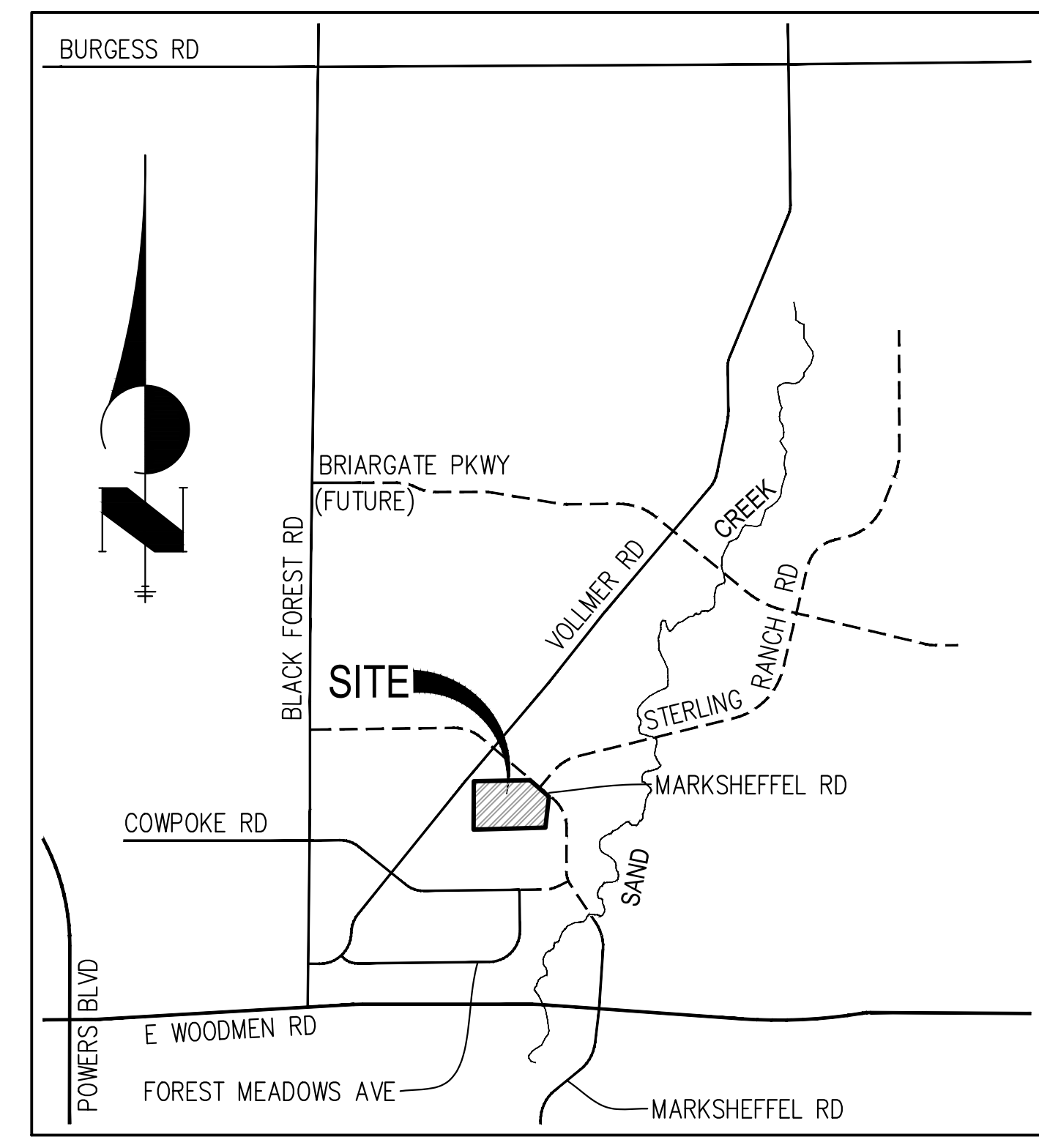
1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
2. NOTWITHSTANDING ANYTHING 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 (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.
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. A SOILS AND GEOLOGY HAZARD LETTER 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
WOOD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

Report

Add date of the report

PCD Filing NO.:



BASIS OF BEARINGS

THE NORTH LINE OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 5, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, BEING MONUMENTED AT THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 5 BY A 3-1/4" ALUMINUM CAP STAMPED "LS 10376" AND AT THE NORTH QUARTER CORNER BY A 3-1/4" ALUMINUM CAP STAMPED "LS 4842 1996", BEARING S89°14'13"W.

BENCHMARKS

1. THE TOP OF AN ALUMINUM SURVEYORS CAP, STAMPED "9853", AT THE SOUTHEAST BOUNDARY CORNER OF BARBARICK SUBDIVISION
NORTHING = 411416.273
EASTING = 235167.071
ELEVATION = 7023.42
2. THE TOP OF A RED PLASTIC SURVEYORS CAP, ILLEGIBLE, AT THE NORTHWEST BOUNDARY CORNER OF PAWNEE RANCHEROS SUBDIVISION
NORTHING = 410095.404
EASTING = 235052.131
ELEVATION = 7000.40
3. THE TOP OF A RED PLASTIC SURVEYORS CAP, STAMPED "38141", AT THE SOUTHWEST BOUNDARY CORNER OF BARBARICK SUBDIVISION
NORTHING = 411399.962
EASTING = 233849.817
ELEVATION = 7030.82

AGENCIES

OWNER/DEVELOPER:	RHETORIC, LLC 20 BOULDER CRESCENT, SUITE 200 COLORADO SPRINGS, CO 80903 ERIC HOWARD (719) 964-0064	FIRE DISTRICT:	BLACK FOREST FIRE PROTECTION DISTRICT 11445 TEACHOUT ROAD COLORADO SPRINGS, CO 80908 CHIEF BRYAN JACK (719) 495-4300
CIVIL ENGINEER:	JR ENGINEERING, LLC 5475 TECH CENTER DRIVE COLORADO SPRINGS, CO 80919 MIKE BRAMLETT P.E. (303) 267-6240	GAS DEPARTMENT:	COLORADO SPRINGS UTILITIES 7710 DURANT DR. COLORADO SPRINGS, CO 80947 TIM WENDT (719) 668-3556
COUNTY ENGINEERING:	EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, CO 80910 JEFF RICE, P.E. (719) 520-6300	ELECTRIC DEPARTMENT:	MOUNTAIN VIEW ELECTRIC 11140 E. WOODMEN ROAD FALCON, CO 80831 (719) 495-2283
TRAFFIC ENGINEERING:	EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 JENNIFER IRVINE, P.E. (719) 520-6460	ARCHITECT/PLANNER:	NES LANDSCAPE ARCHITECTS 619 N CASCADE AVE COLORADO SPRINGS, CO 80903 JENNIFER SHAGIN (719) 884-1374
WATER RESOURCES:	STERLING RANCH METRO DISTRICT ENGINEERS JOS-HYDRO CONSULTANTS 545 E. PIKES PEAK AVE., SUITE 300 COLORADO SPRINGS, CO 80903 JOHN MCGINN (719) 668-8769		

SHEET INDEX

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EL PASO COUNTY STATEMENT

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.

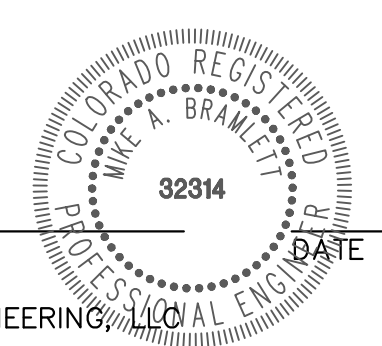
IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF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

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

ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND 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 PLANS.

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING



OWNER/DEVELOPER STATEMENT

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

ERIC HOWARD _____ DATE _____

20 BOULDER CRESCENT, SUITE 200
COLORADO SPRINGS, CO 80903

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
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20 BOULDER CRESCENT, STE 200
COLORADO SPRINGS, CO
ERIC HOWARD
EHOWARDPC@GMAIL.COM
(719) 964-0064

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A Westman Company
Central 303-740-9888 • Colorado Springs 719-583-2583
Fort Collins 970-491-9888 • www.jrengineering.com

BY	DATE	REVISION

STERLING RECYCLING FACILITY

COVER

SHEET 1 OF 19

JOB NO. 25188.14

LAYER LINETYPE LEGEND

Table with columns for EXISTING and PROPOSED linetypes. Rows include PHASE LINE, MATCH LINE, SECTION LINE, BOUNDARY LINE, PROPERTY LINE, EASEMENT LINE, RIGHT OF WAY, R.O.W. A LINE, CENTERLINE, CITY LIMITS, WIRE FENCE, CHAIN LINK FENCE, WOOD FENCE, MASONRY FENCE, GUARDRAIL, CONC. BARRIER, CABLE TV, ELECTRIC, FIBER OPTIC, GAS MAIN, IRRIGATION MAIN, OIL/PETRO. MAIN, OVERHEAD UTILITY, SANITARY SEWER, STORM DRAIN, TELEPHONE, WATER MAIN, RAW WATER LINE, SWALE/WATERWAY FLOWLINE, DIVERSION DITCH, DIVERSION CHANNEL, MAJOR DRAINAGE BASIN, MINOR DRAINAGE BASIN, TOP OF SLOPE, TOE OF SLOPE, EDGE OF WATER, INDEX CONTOUR, INTERMEDIATE CONTOUR, DEPRESSION CONT. (INDEX), DEPRESSION CONT. (INTER), TOP OF CUTS, TOE OF FILLS, CUT AND FILL LINE, SILT FENCE, 100 YEAR FLOODPLAIN, 500 YEAR FLOODPLAIN, FLOODWAY, BASE FLOOD ELEVATION, EDGE OF WETLANDS, STONE WALL.

LANDSCAPE LEGEND

Table with columns for EXISTING and PROPOSED symbols. Rows include TREE - CONIFEROUS, TREE - DECIDUOUS, SHRUB/BUSH, SHRUBS AND BUSHES, IRRIGATION BOX, IRRIGATION SPRINKLER, IRRIGATION VALVE, BOLLARD, FLAGPOLE.

UTILITIES LEGEND

Table with columns for EXISTING and PROPOSED symbols. Rows include STORM SEWER (MANHOLE, STORM INLET, AREA INLET - SQUARE, AREA INLET - ROUND, FLARED END SECTION, RIPRAP), SANITARY SEWER (LINE MARKER, SERVICE MARKER, CLEAN-OUT, MANHOLE W/ DIRECTIONAL FLOW ARROW), WATER LINE (LINE MARKER, SERVICE MARKER, FIRE HYDRANT, FIRE CONNECTION, MANHOLE, BEND, BLOW-OFF VALVE, WELL, METER, VALVE, REDUCER, THRUST BLOCK, CROSS, PLUG W/ THRUST BLOCK, TEE, REVERSE ANCHOR, ANODE, AIR & VACUUM VALVE ASSEMBLY, TRANSMISSION BLOW-OFF ASSEMBLY), GAS LINE (MARKER, SERVICE MARKER, METER, VALVE, PLUG, TEE), DRY UTILITIES (CABLE TV MARKER, CABLE TELEVISION PEDESTAL, ELECTRIC MARKER, ELECTRIC SERVICE MARKER, ELECTRICAL PEDESTAL, ELECTRICAL METER, ELECTRICAL MANHOLE, FIBER-OPTIC MARKER, IRRIGATION PEDESTAL, TELEPHONE MARKER, TELEPHONE PEDESTAL, TELEPHONE MANHOLE, UTILITY POLE, GUY ANCHOR, GUY POLE), MISC. UTILITIES (VENT PIPE, TEST HOLE DESIGNATOR).

MONUMENTATION LEGEND

Table with columns for EXISTING and PROPOSED symbols. Rows include ALUMINUM CAP - FOUND, BRASS CAP - FOUND, BENCHMARK - FOUND, CROSS - FOUND, MONUMENT - SET, MONUMENT - FOUND (DEFAULT), MONUMENT - FOUND (ALTERNATE 1), MONUMENT - FOUND (ALTERNATE 2), MONUMENT - FOUND (ALTERNATE 3), MONUMENT - FOUND (ALTERNATE 4), MONUMENT - FOUND (ALTERNATE 5), MONUMENT - FOUND (ALTERNATE 6), MONUMENT - FOUND (ALTERNATE 7), NAIL & WASHER - FOUND, PANEL - FOUND, PK NAIL - FOUND, ROW MONUMENT - FOUND, ROW MARKER - FOUND, SECTION CORNER - FOUND, SECTION CORNER - SET, QUARTER-SECTION CORNER - FOUND, QUARTER-SECTION CORNER - SET, SECTION CENTER - FOUND, SECTION CENTER - FOUND, CONTROL/TRVERSE POINT - SET.

STORM WATER MANAGEMENT

Table with columns for KEY and SYMBOL. Rows include CHECK DAM, CONSTRUCTION ROAD STABILIZATION, CURB SOCK INLET PROTECTION, CONCRETE WASHOUT AREA, DIVERSION DITCH AND DIKE, TEMPORARY, DIVERSION CHANNEL, TEMPORARY, DEWATERING, EROSION CONTROL BLANKET, INLET FILTER, INLET PROTECTION, MULCHING, OUTLET PROTECTION, PAVED FLUME, PERMENENT SEEDING, REINFORCED CONCRETE DAM, ROUGH CUT STREET CONTROL, SEDIMENT BASIN, SEDIMENT CONTROL LOG, SILT FENCE, SURFACE ROUGHENING, STABILIZED STAGING AREA, SEDIMENT TRAP, STRAW BALE BARRIER, TERRACING, TEMPORARY SEEDING, TEMPORARY STREAM CROSSING CULVERT/BRIDGE, TEMPORARY STREAM CROSSING FORD TYPE, TEMPORARY SLOPE DRAIN, VEHICLE TRACKING CONTROL.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE. THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.
PREPARED FOR
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20 BOULDER CRESCENT, STE 200
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Table with columns for No., REVISION, H-SCALE, V-SCALE, DATE, DESIGNED BY, DRAWN BY, CHECKED BY. Includes a revision table with columns for No., REVISION, H-SCALE, V-SCALE, DATE, DESIGNED BY, DRAWN BY, CHECKED BY.

STERLING RECYCLING FACILITY LEGEND
ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR ENGINEERING
MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING
SHEET 2 OF 19
JOB NO. 25188.14



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BMP PHASING

INITIAL (WINTER 2023):

1. INSTALL VTC
2. INSTALL CWA
3. ESTABLISH SSA
4. INSTALL CONSTRUCTION FENCE
5. INSTALL SILT FENCE
6. INSTALL SEDIMENT BASINS
7. INSTALL TEMPORARY SWALES
8. INSTALL CHECK DAMS

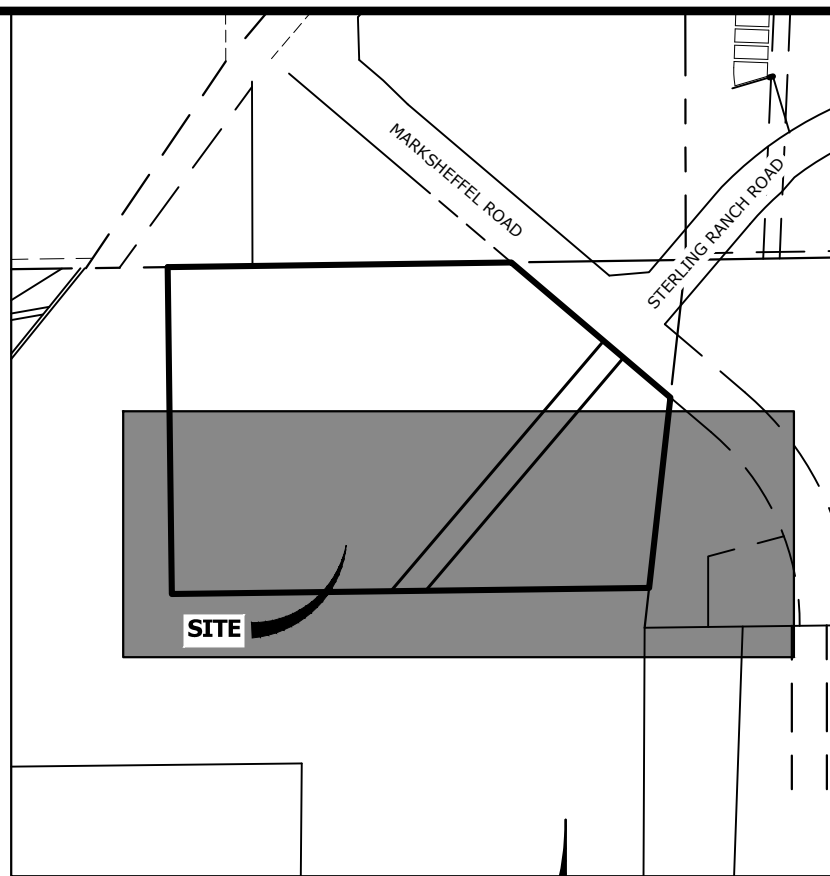
INTERIM (WINTER 2023-SPRING 2024):

1. MAINTAIN ALL BMP'S
2. INSTALL INLET AND OUTLET PROTECTION
3. INSTALL EROSION CONTROL BLANKETS

FINAL (SUMMER 2024):

1. INSTALL MULCH AND PERMANENT SEEDING IN ALL DISTURBED AREAS
2. REMOVE ALL TEMPORARY BMP'S AFTER FINAL STABILIZATION

FINAL STABILIZATION ANTICIPATED SUMMER 2024

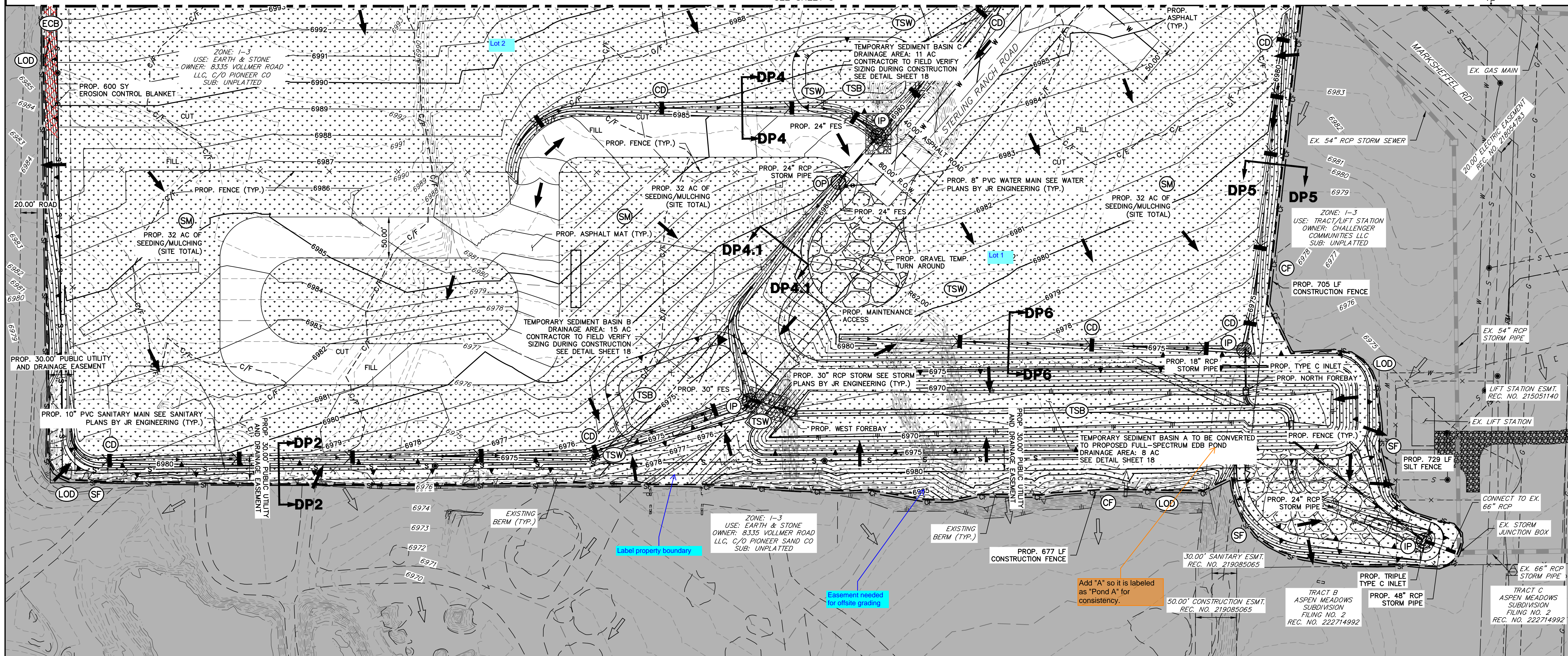


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SEE SHEET 5



No.	REVISION	BY	DATE

LEGEND

SILT FENCE	(SF)	— SF —	PROPOSED FLOW PATH	→
CUT/FILL BOUNDARY	(C/F)	- - - C/F - - -	EXISTING FLOW PATH	⇨
STABILIZED STAGING AREA	(SSA)	[Stippled Box]	LIMITS OF CONSTRUCTION/DISTURBANCE	(LOD) - - - - -
VEHICLE TRACKING CONTROL	(VTC)	[Cross-hatched Box]	PERMANENT SEEDING AND MULCHING	(SM) [Stippled Box]
CONCRETE WASHOUT AREA	(CWA)	[Square Box]	TEMPORARY CHECK DAM	(CD) [Arrow Box]
TEMP. SWALE	(TSW)	— TSW —	EROSION CONTROL BLANKET	(ECB) [Cross-hatched Box]
INLET PROTECTION	(IP)	[Circle Box]	OUTLET PROTECTION	(OP) [Circle Box]
TEMPORARY SEDIMENT BASIN	(TSB)	[Square Box]	STOCK PILE	(SP) [Circle Box]

GRADING, EROSION, AND STORMWATER QUALITY CONTROL NOTES:

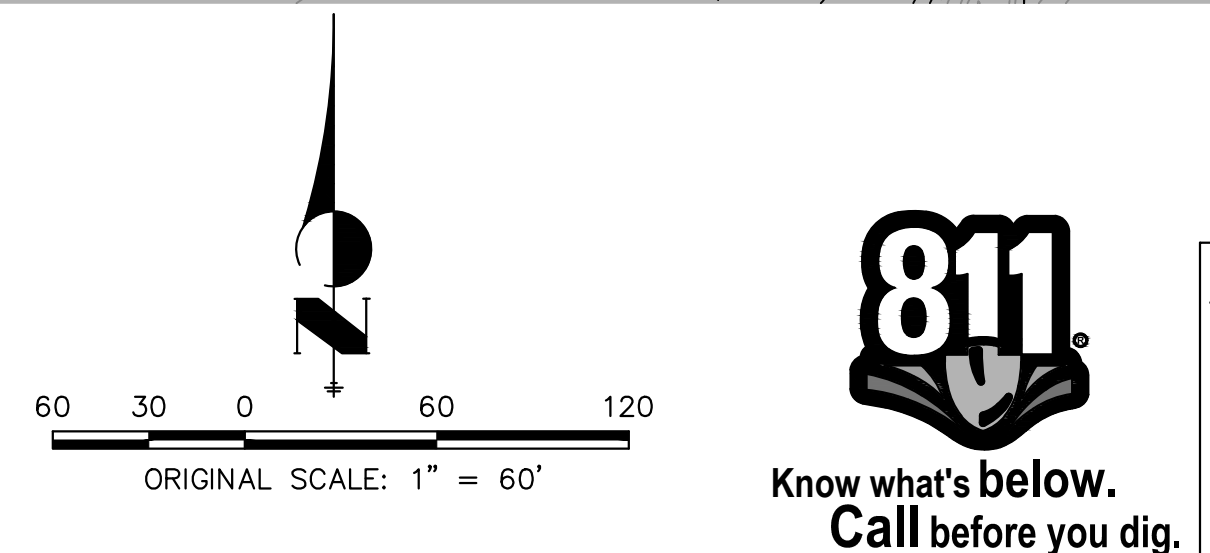
EXISTING VEGETATION ON THE PROJECT SITE CONSISTS OF SPARSE GRASS.

THERE ARE NO DEDICATED ASPHALT OR CONCRETE BATCH PLANTS PROPOSED AS PART OF THIS PROJECT.

DEWATERING OPERATIONS ARE NOT ANTICIPATED FOR THIS PROJECT.

ALL PROPOSED OFF-SITE STORMWATER CONTROL MEASURES ARE UNDER THE DIRECT CONTROL OR OWNERSHIP OF THE OWNER OR OPERATOR FOR THIS DEVELOPMENT.

ALL SLOPES 3:1 OR GREATER REQUIRE EROSION CONTROL BLANKET.

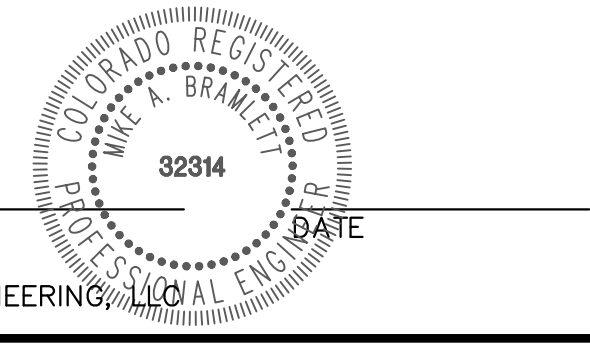


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ENGINEER'S STATEMENT

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MIKE A. BRAMLETT, P.E.
 COLORADO P.E. 32314
 FOR AND ON BEHALF OF JR ENGINEERING



STERLING RECYCLING FACILITY
 EROSION CONTROL PLAN

SHEET 4 OF 19
 JOB NO. 25188.14

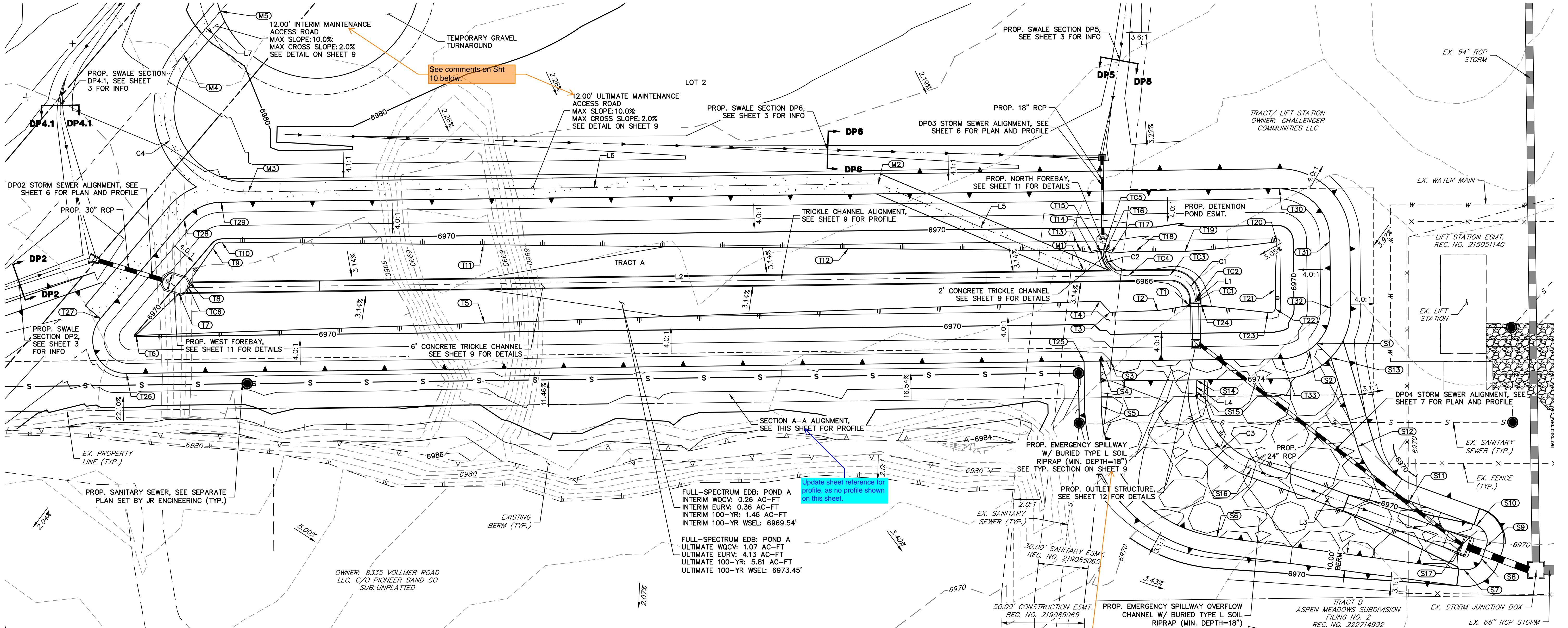
POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
M1	MAINTENANCE ACCESS CL	N: 409148.21 E: 233725.92	6966.20
M2	MAINTENANCE ACCESS CL	N: 409200.15 E: 233602.64	6975.50
M3	MAINTENANCE ACCESS CL	N: 409195.35 E: 233224.55	6975.50
M4	MAINTENANCE ACCESS CL	N: 409277.72 E: 233185.82	6979.12
M5	MAINTENANCE ACCESS CL	N: 409303.58 E: 233207.80	6980.80
S1	SPILLWAY/TOP	N: 409104.27 E: 233865.69	6975.50
S2	SPILLWAY/CREST	N: 409100.41 E: 233861.10	6974.00
S3	SPILLWAY/CREST	N: 409093.91 E: 233742.16	6974.00
S4	SPILLWAY/TOP	N: 409093.83 E: 233736.16	6975.50
S5	SPILLWAY OVERFLOW CHANNEL BERM	N: 409066.70 E: 233736.51	6975.20
S6	SPILLWAY OVERFLOW CHANNEL BERM	N: 408988.41 E: 233805.96	6972.90
S7	SPILLWAY OVERFLOW CHANNEL BERM	N: 408968.72 E: 233954.16	6969.94
S8	SPILLWAY OVERFLOW CHANNEL BERM	N: 408975.22 E: 233964.88	6969.69

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
S9	SPILLWAY OVERFLOW CHANNEL BERM	N: 408982.56 E: 233967.53	6969.69
S10	SPILLWAY OVERFLOW CHANNEL BERM	N: 408995.31 E: 233961.69	6969.94
S11	SPILLWAY OVERFLOW CHANNEL BERM	N: 409009.96 E: 233921.23	6971.59
S12	SPILLWAY OVERFLOW CHANNEL BERM	N: 409042.53 E: 233890.39	6973.37
S13	SPILLWAY OVERFLOW CHANNEL BERM	N: 409095.89 E: 233874.29	6975.50
S14	SPILLWAY OVERFLOW CHANNEL FLOWLINE	N: 409082.56 E: 233793.62	6974.00
S15	SPILLWAY OVERFLOW CHANNEL FLOWLINE	N: 409075.72 E: 233793.62	6973.79
S16	SPILLWAY OVERFLOW CHANNEL FLOWLINE	N: 409029.34 E: 233826.59	6971.89
S17	SPILLWAY OVERFLOW CHANNEL FLOWLINE	N: 408983.68 E: 233952.69	6967.69
T1	TOE	N: 409127.26 E: 233789.46	6965.81
T2	TOE	N: 409124.15 E: 233770.51	6966.53
T3	TOE	N: 409123.13 E: 233741.79	6966.70
T4	TOE	N: 409129.77 E: 233735.71	6966.52

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
T5	TOE	N: 409116.64 E: 233366.44	6968.63
T6	TOE	N: 409109.20 E: 233157.02	6969.82
T7	TOE	N: 409134.32 E: 233182.94	6968.92
T8	TOE	N: 409141.39 E: 233189.08	6968.89
T9	TOE	N: 409161.58 E: 233203.26	6969.44
T10	TOE	N: 409165.23 E: 233208.66	6969.52
T11	TOE	N: 409163.64 E: 233365.70	6968.62
T12	TOE	N: 409161.41 E: 233584.86	6967.37
T13	TOE	N: 409159.99 E: 233723.95	6966.58
T14	TOE	N: 409158.97 E: 233730.89	6966.30
T15	TOE	N: 409159.84 E: 233736.11	6965.69
T16	TOE	N: 409159.88 E: 233739.11	6965.69
T17	TOE	N: 409158.63 E: 233742.42	6966.18

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
T18	TOE	N: 409159.68 E: 233757.32	6966.39
T19	TOE	N: 409159.68 E: 233786.68	6966.30
T20	TOE	N: 409165.43 E: 233841.94	6967.56
T21	TOE	N: 409136.76 E: 233840.97	6967.23
T22	TOE	N: 409125.17 E: 233840.91	6967.18
T23	TOE	N: 409122.99 E: 233836.52	6967.03
T24	TOE	N: 409127.35 E: 233796.46	6965.81
T25	TOP	N: 409093.71 E: 233726.16	6975.50
T26	TOP	N: 409086.41 E: 233151.37	6975.50
T27	TOP	N: 409119.31 E: 233135.83	6975.50
T28	TOP	N: 409178.50 E: 233185.82	6975.50
T29	TOP	N: 409189.14 E: 233208.36	6975.50
T30	TOP	N: 409197.20 E: 233843.30	6975.50

POINT TABULATION			
ID NO.	DESCRIPTION	NORTHING/EASTING	ELEVATION
T31	TOP	N: 409165.59 E: 233873.70	6975.50
T32	TOP	N: 409125.59 E: 233874.21	6975.50
T33	TOP/SPILLWAY CREST	N: 409095.21 E: 233844.59	6974.00
TC1	TRICKLE CHANNEL	N: 409129.26 E: 233792.94	6965.32
TC2	TRICKLE CHANNEL	N: 409130.56 E: 233792.92	6965.33
TC3	TRICKLE CHANNEL	N: 409145.37 E: 233777.73	6965.45
TC4	TRICKLE CHANNEL	N: 409145.05 E: 233752.80	6965.57
TC5	TRICKLE CHANNEL	N: 409159.86 E: 233737.61	6965.69
TC6	TRICKLE CHANNEL	N: 409137.89 E: 233188.75	6968.39



Update sheet reference for profile, as no profile shown on this sheet.

FULL-SPECTRUM EDB: POND A
 INTERIM WQCV: 0.26 AC-FT
 INTERIM EURV: 0.36 AC-FT
 INTERIM 100-YR: 1.46 AC-FT
 INTERIM 100-YR WSEL: 6969.54'
 FULL-SPECTRUM EDB: POND A
 ULTIMATE WQCV: 1.07 AC-FT
 ULTIMATE EURV: 4.13 AC-FT
 ULTIMATE 100-YR: 5.81 AC-FT
 ULTIMATE 100-YR WSEL: 6973.45'

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S00°43'38"E	1.29'
L2	N89°16'22"E	589.03'
L3	S70°05'44"E	134.11'
L4	S00°43'38"E	6.85'
L5	S67°09'16"E	133.78'
L6	N89°16'22"E	378.12'
L7	S40°21'31"W	33.94'

CURVE TABLE			
CURVE	DELTA	RADIUS	LENGTH
C1	90°00'00"	15.00'	23.56'
C2	90°00'00"	15.00'	23.56'
C3	69°22'06"	50.00'	60.54'
C4	131°05'09"	50.00'	114.39'



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- POND NOTES**
- ALL PROPOSED POND IMPROVEMENTS ARE PRIVATE UNLESS OTHERWISE NOTED.
 - SEE SHEETS 6-7 FOR PROPOSED STORM SEWER DESIGN.
 - SEE STREET IMPROVEMENT PLANS BY JR ENGINEERING FOR PROPOSED STREET DESIGN.
 - SEE SHEETS 4-5 FOR PROPOSED GRADING AND EROSION CONTROL PLAN BY JR ENGINEERING.
 - SEE WATER AND WASTEWATER PLANS BY JR ENGINEERING FOR PROPOSED DESIGN OF SRMD-OWNED WATER AND SANITARY UTILITIES.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE AS DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
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J.R. ENGINEERING
 A Westman Company
 Centennial 303-740-9888 • Colorado Springs 719-583-2583
 Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	BY	DATE

H-SCALE 1"=30'
 V-SCALE 1"=3'

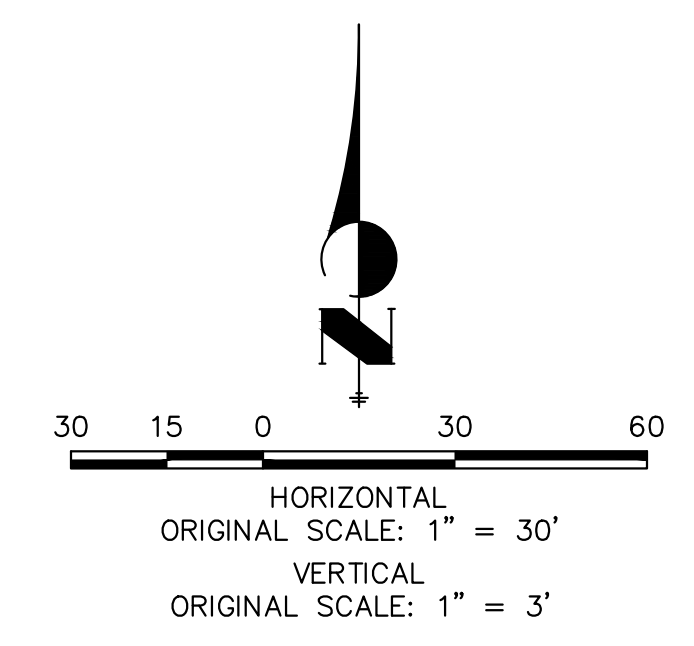
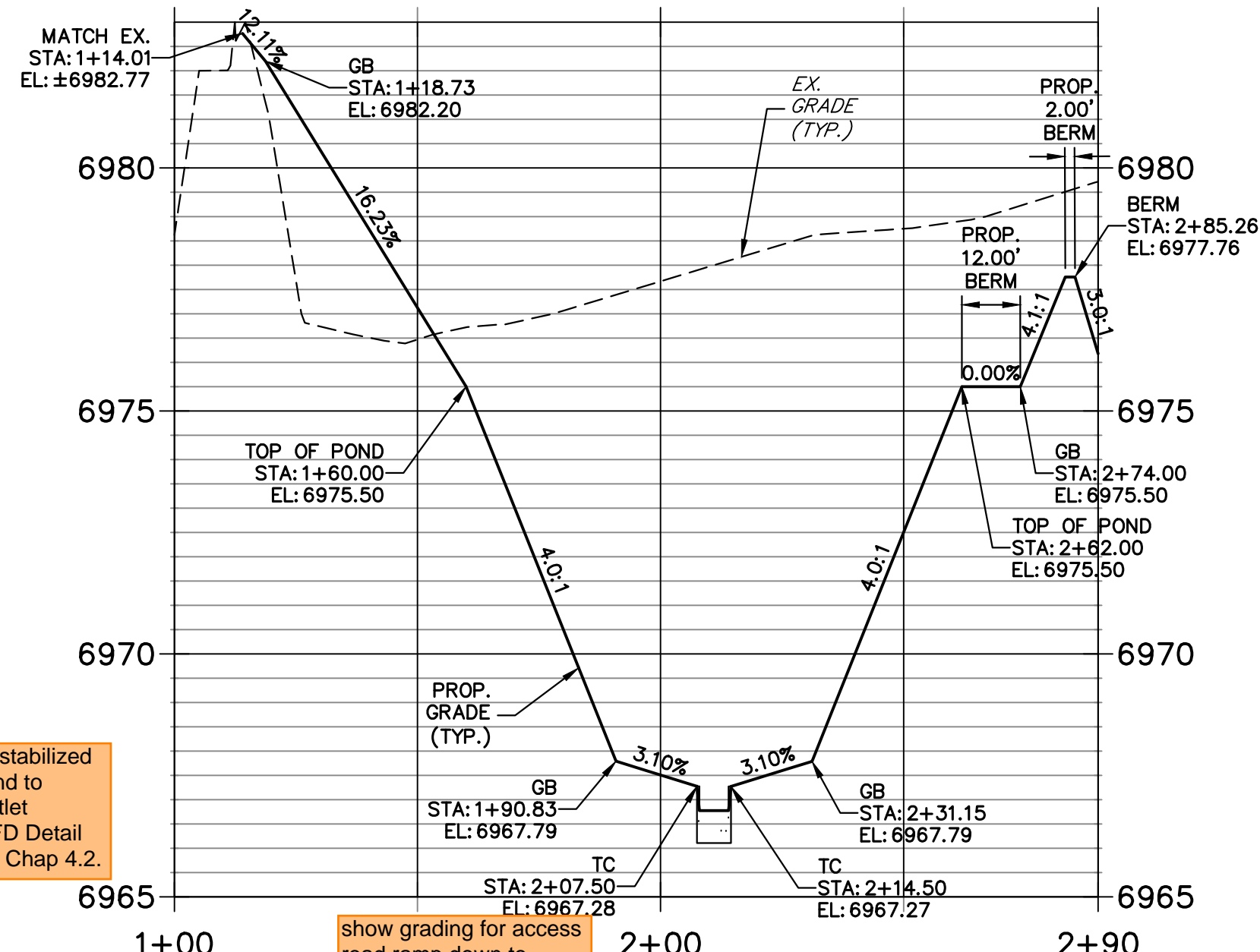
DESIGNED BY GAG
 DRAWN BY GAG
 CHECKED BY

DATE 08/01/23

STERLING RECYCLING FACILITY
POND PLANS

SHEET 8 OF 19
 JOB NO. 25188.14

SECTION A-A PROFILE STA 1+00.00 TO 2+90.00

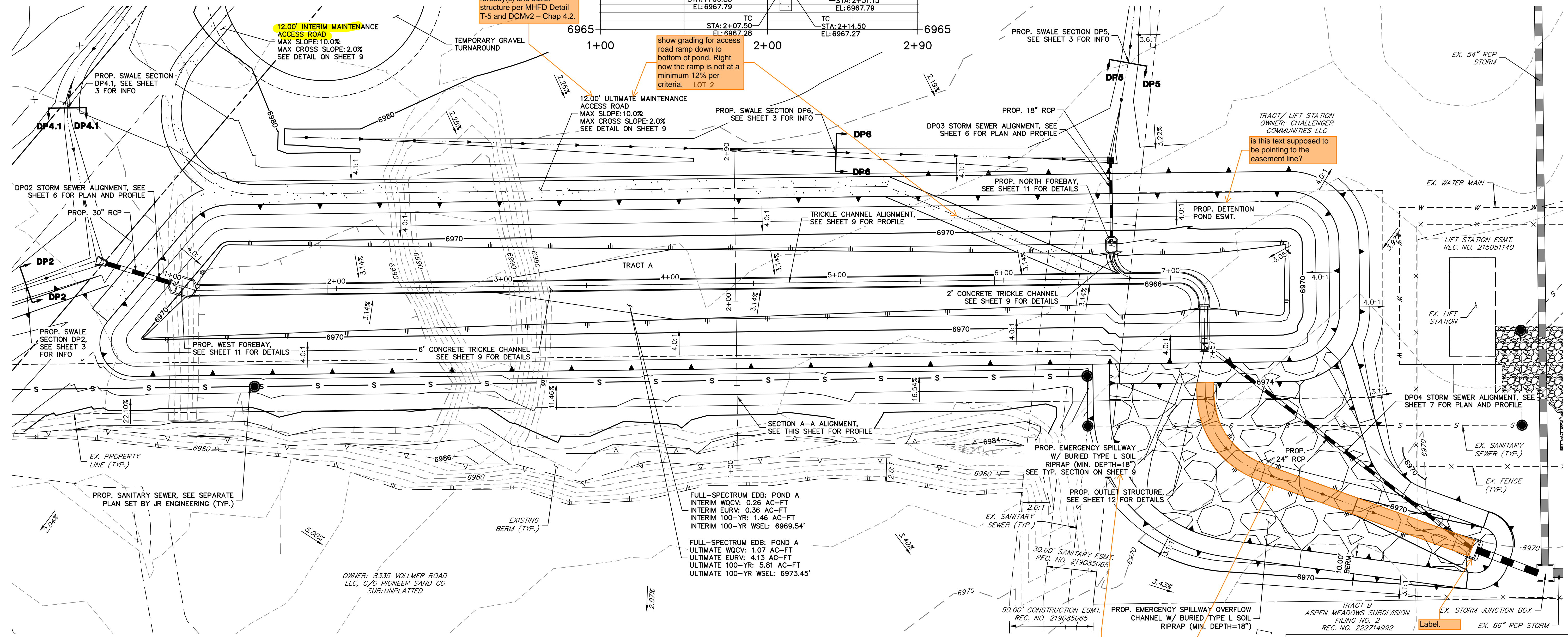


Include callout for pet waste station(s) around the pond, with signage stating that pet waste must be picked up.

Address high groundwater table. See my comments in the FDR on PDF pages 14-15.

For larger ponds, stabilized access shall extend to forebay(s) and outlet structure per MHFD Detail T-5 and DCMv2 - Chap 4.2.

show grading for access road ramp down to bottom of pond. Right now the ramp is not at a minimum 12% per criteria. LOT 2



FULL-SPECTRUM EDB: POND A
INTERIM WQCV: 0.26 AC-FT
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INTERIM 100-YR: 1.46 AC-FT
INTERIM 100-YR WSEL: 6969.54'

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ULTIMATE WQCV: 1.07 AC-FT
ULTIMATE EURV: 4.13 AC-FT
ULTIMATE 100-YR: 5.81 AC-FT
ULTIMATE 100-YR WSEL: 6973.45'

is this text supposed to be pointing to the easement line?

Sheet 10.
is this the outfall channel discussed on PDF pg 12 of the FDR? It's not shown in the spillway detail on the next sheet. Please label and provide a detail.

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

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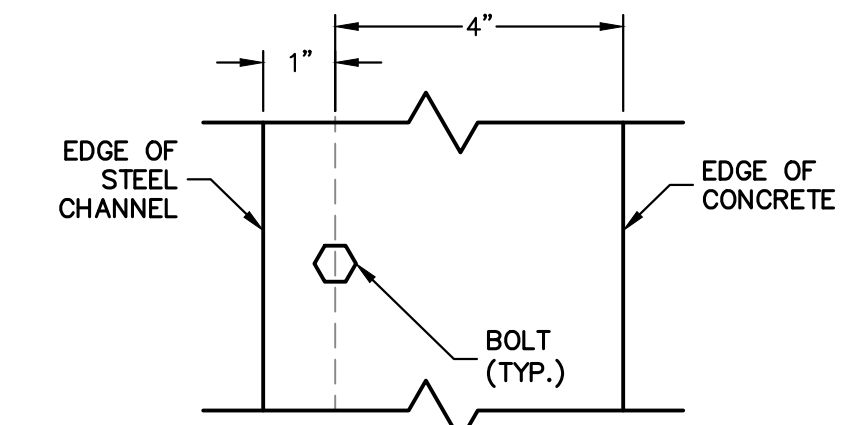
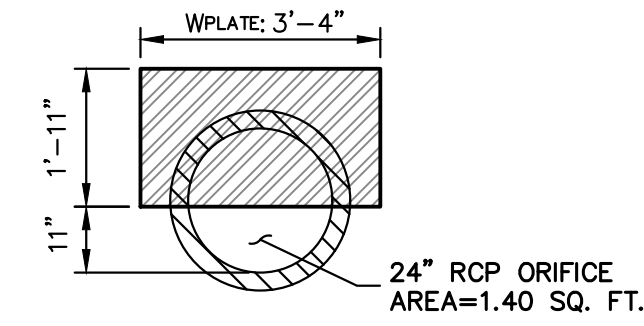
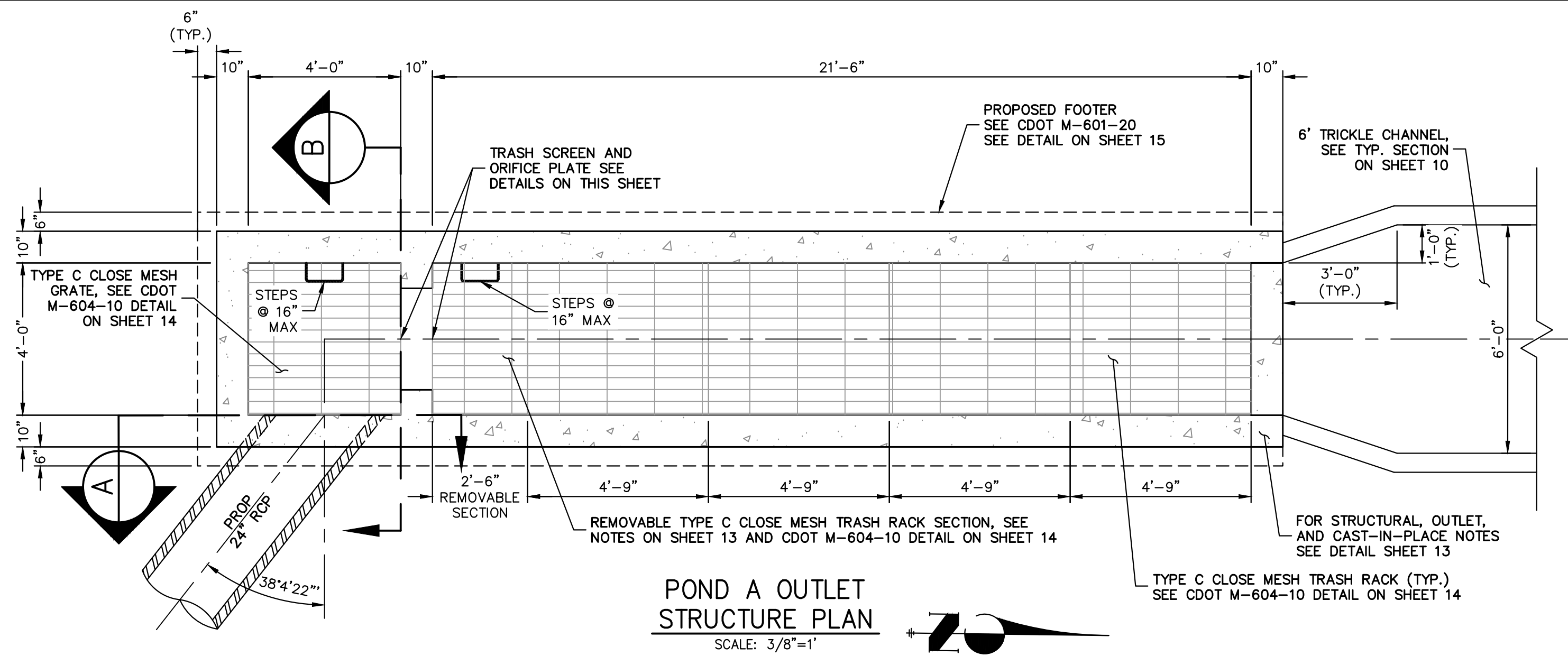
PREPARED FOR
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No.	REVISION	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
1		08/01/23	GAG	GAG	

STERLING RECYCLING FACILITY
POND PLANS

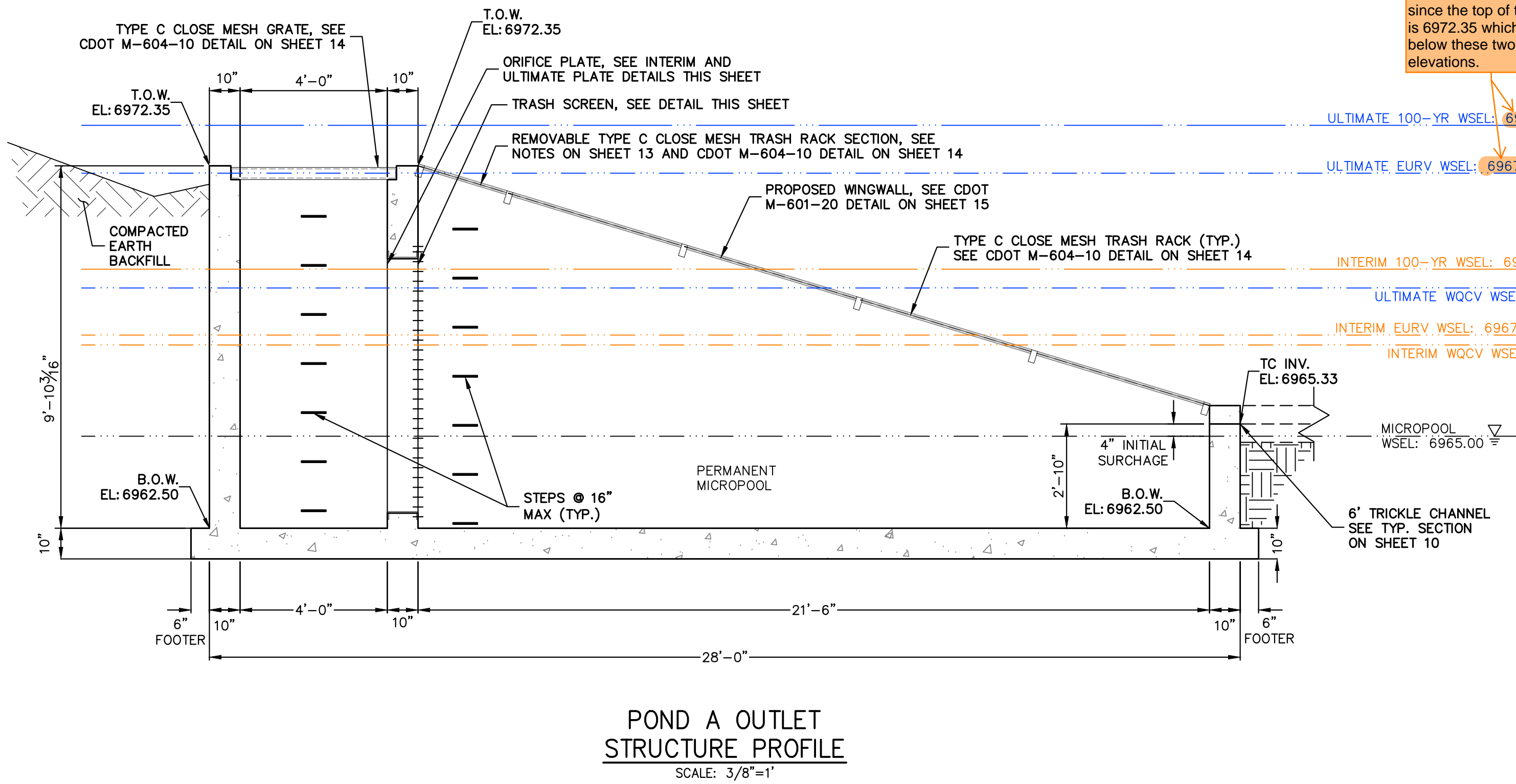
SHEET 9 OF 19
JOB NO. 25188.14



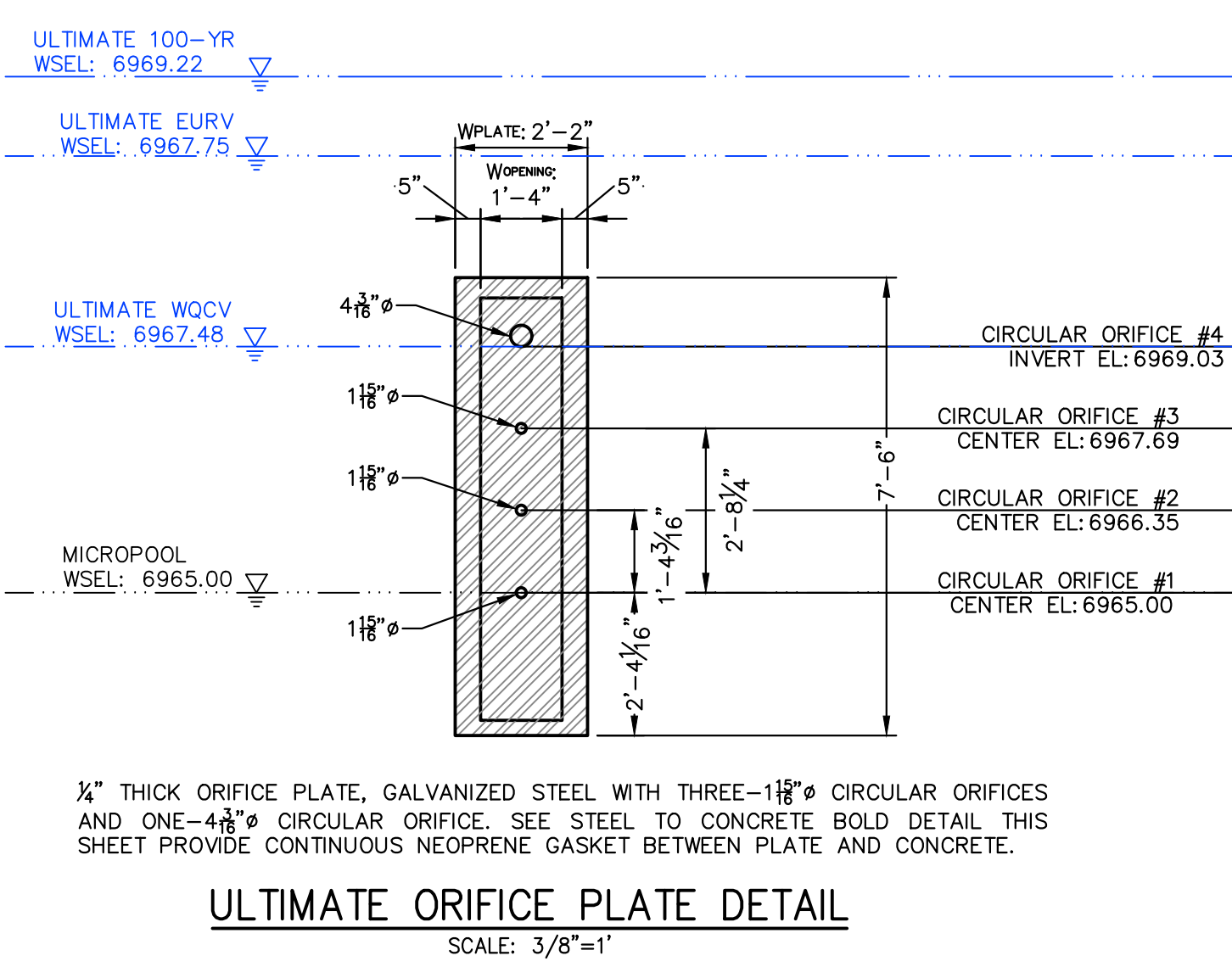
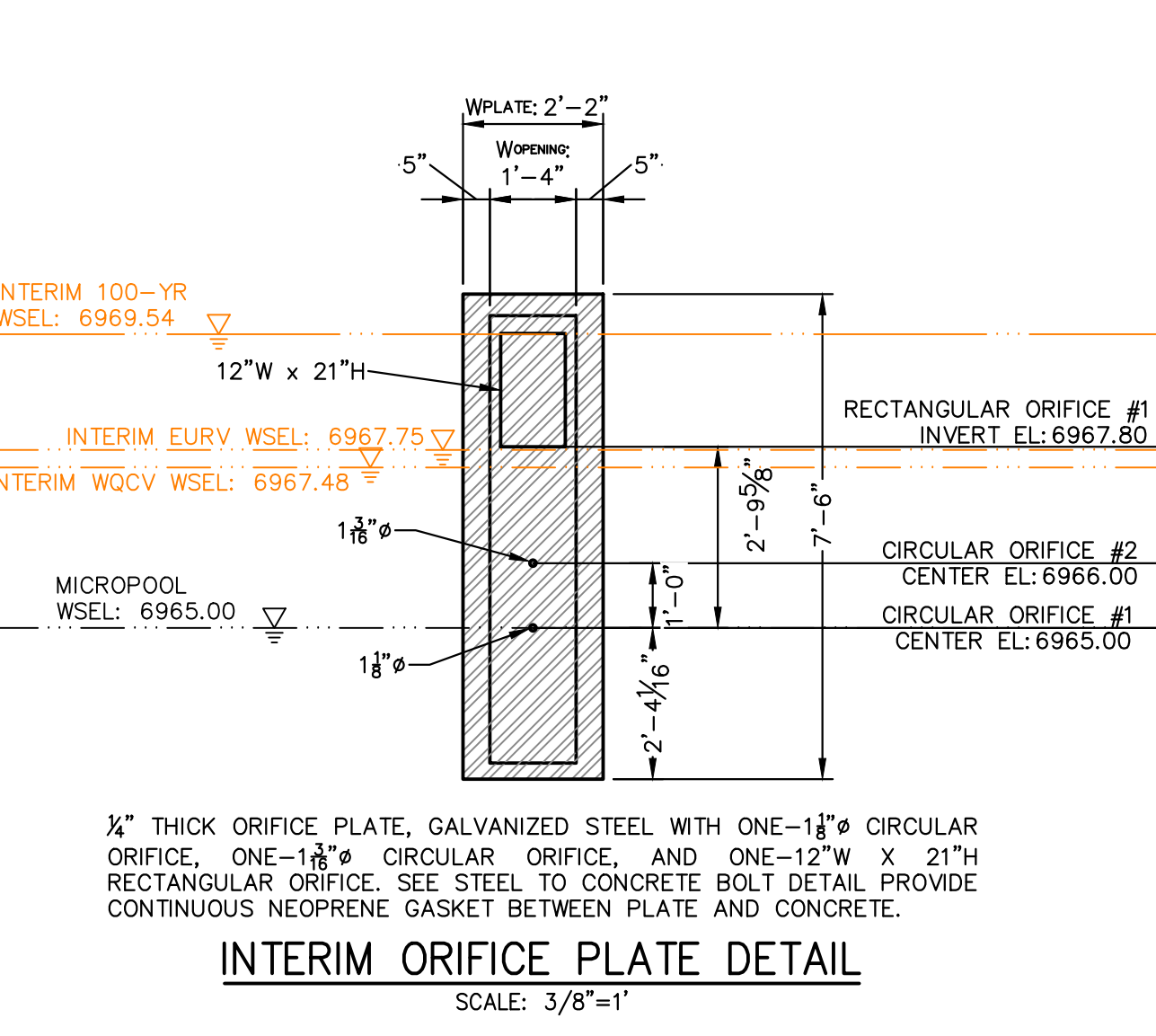
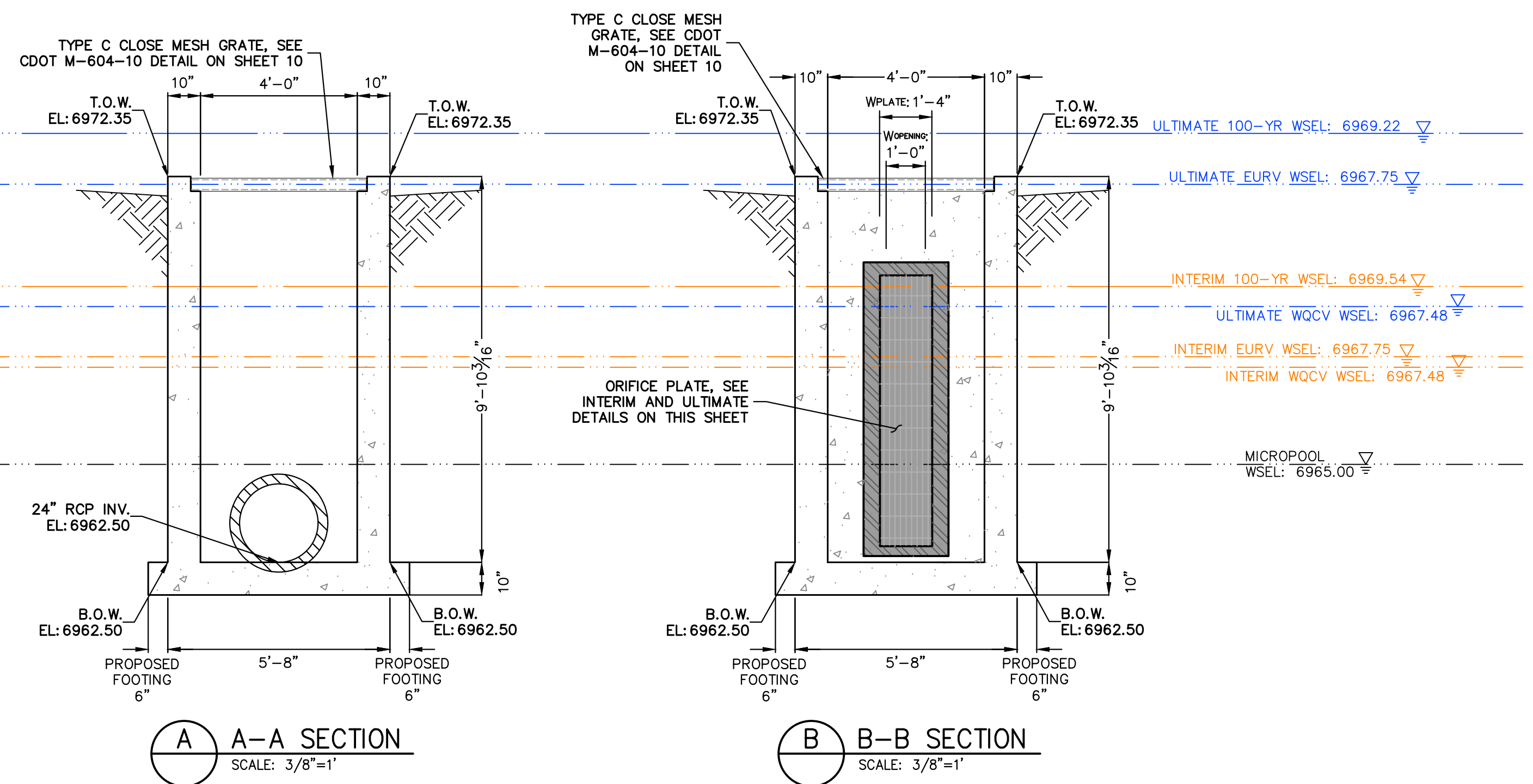
3/8" THICK RESTRICTOR PLATE, GALVANIZED STEEL, SEE STEEL TO CONCRETE BOLT DETAIL THIS SHEET. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN PLATE AND CONCRETE.

BOLTS SPACED @ 12" O.C. MAX. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN PLATE AND CONCRETE

For extra clarity, state that "no restrictor plate to be installed in Interim condition"



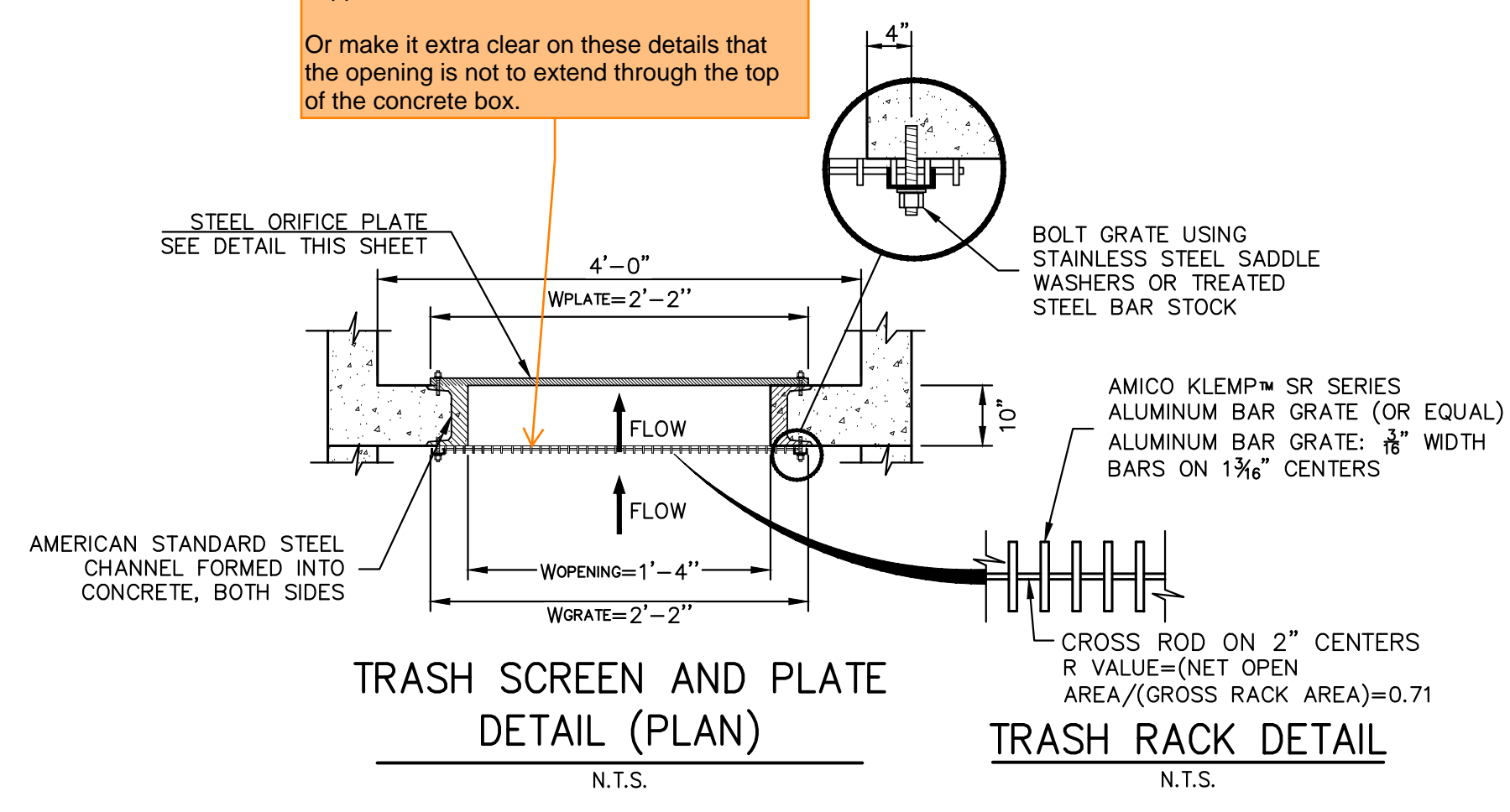
Revise these elevations, since the top of the grate is 6972.35 which is at or below these two elevations.



Recommend capping the top of this opening to prevent debris from getting in between microscreen and orifice plate.

In other details on this sheet, this opening is shown to have concrete over top of it. But the opening for the screen is rarely constructed that way. So just asking you to consider that the opening will extend through the top of the box and therefore this opening will need to be capped.

Or make it extra clear on these details that the opening is not to extend through the top of the concrete box.



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NO.	REVISION	BY	DATE

H-SCALE: 3/8"=1'
 V-SCALE: 3/8"=1'
 DATE: 08/01/23
 DESIGNED BY: GAG
 DRAWN BY: GAG
 CHECKED BY: GAG

STERLING RECYCLING FACILITY
 POND DETAILS

SHEET 12 OF 19
 JOB NO. 25188.14

GENERAL STRUCTURE NOTES:

ALL WORK SHALL BE DONE IN ACCORDANCE WITH CITY OR COUNTY STANDARD CONSTRUCTION SPECIFICATIONS. EXCEPT AS SHOWN IN THE PLANS, STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH CDOT M-206-1, AND M-206-2 EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213

THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERE TO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO A 1-800-922-1987 AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OF OTHER.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DESIGNING AND PROVIDING ALL BRACING AND SHORING AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE EXCAVATION PROCEDURES INCLUDING ANY SHORING REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL METHODS AND MEANS OF CONSTRUCTION AS WELL AS ALL JOB SITE SAFETY & HEALTH PRECAUTIONS.

ALL SOILS WORK INCLUDING (BUT NOT LIMITED TO) PIER DRILLING AND CONSTRUCTION, SOILS EXCAVATION, FILL PLACEMENT, AND STRUCTURE BACKFILL SHALL BE IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT, UNLESS MORE STRINGENT REQUIREMENTS ARE PRINTED ON THE "IRRIGATION NOTES".

BACKFILL SHALL NOT BEGIN UNTIL CONCRETE WALLS REACH COMPRESSION STRENGTH AT LEAST 80 PERCENT OF THE REQUIRED 28 DAY STRENGTH, 0.8fc'.

REINFORCED CONCRETE:
CLASS D CONCRETE: fc'=4,500 psi
REINFORCING STEEL: fy=60,000 psi
ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS D UNLESS NOTED OTHERWISE.

REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 U.N.O.
REINFORCING BARS TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 60.
ALL REINFORCING, EXCEPT PIER REINFORCING, SHALL BE EPOXY COATED AND SHALL CONFORM TO ASTM A775.
ALL REINFORCING SHALL HAVE 2" CONCRETE COVER, U.N.O. ON PLANS, 3" AGAINST GROUND (BOTTOM SLAB)
ALL REINFORCING SHALL BE HOOKED AROUND CORNERS AND LAPPED, SEE DETAILS.
ALL LAP SPLICE LOCATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

THE FOLLOWING TABLE GIVES THE MINIMUM CLASS B (STAGGERED) LAP SPLICE LENGTH FOR EPOXY COATED REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06. THESE SPLICE LENGTHS SHALL BE INCREASED BY 25% FOR BARS SPACED AT LESS THAN 6" ON CENTER, INCREASED BY 40% FOR HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW (TOP BARS), AND INCREASED BY 75% IF BOTH CONDITIONS EXIST. THE INCREASES ABOVE FOR #6 THRU #11 BARS MAY BE 25%, 13%, AND 42% RESPECTIVELY.

#4	1'-3"	#5	1'-7"
#6	2'-5"	#7	2'-10"
#8	3'-8"	#9	4'-6"
#10	5'-11"	#11	7'-3"

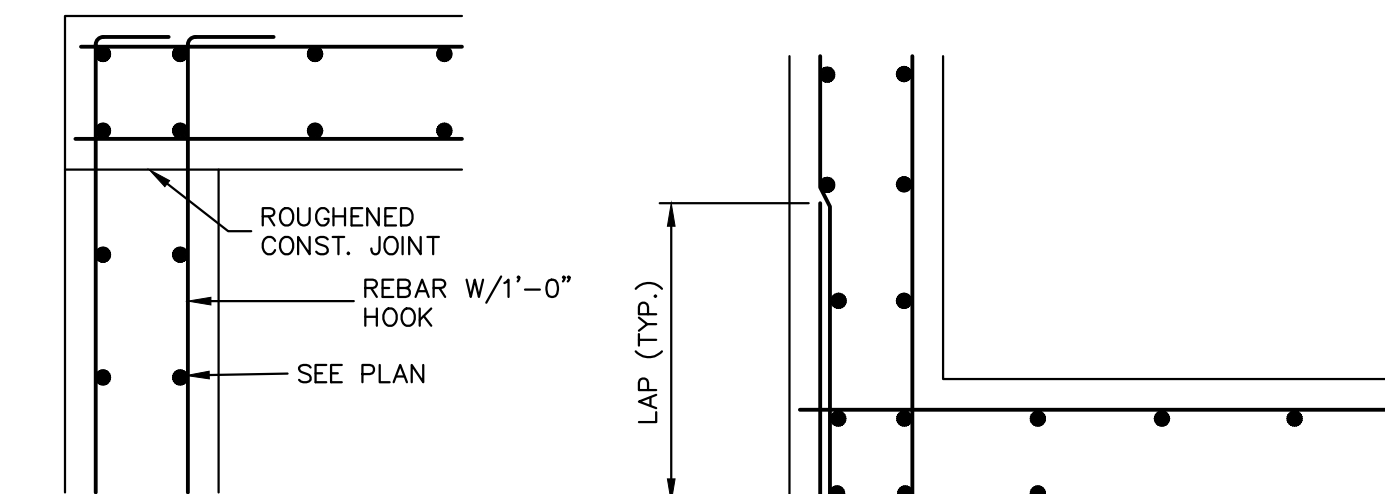
WHEN THE CONTRACTOR ELECTS TO SUBSTITUTE EPOXY COATED REINFORCEMENT FOR BLACK REINFORCING BARS, THE MINIMUM LAP SPLICE SHALL BE AS DESCRIBED ABOVE.

STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

THE CONTRACTOR SHALL SUBMIT REINFORCING STEEL PLACING DRAWINGS (PRIOR TO CONSTRUCTION) TO THE ENGINEER FOR REVIEW FOR CONFORMANCE WITH THE DESIGN DRAWINGS. THE DESIGN DRAWINGS SHALL GOVERN OVER PLACING DRAWINGS IN ALL CASES UNLESS MODIFICATIONS ARE APPROVED IN WRITING BY ENGINEER.

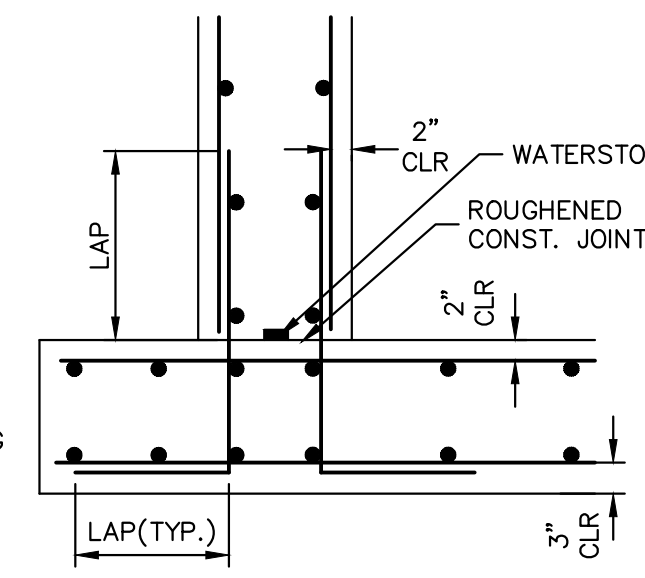
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

E.F. = EACH FACE	O.F. = OUTSIDE FACE
F.E. = FAR FACE	T.&B. = TOP AND BOTTOM
N.F. = NEAR FACE	T.F. = TOP FACE
I.F. = INSIDE FACE	B.F. = BOTTOM FACE
T.W. = TWO WAY	T.F. = TWO FACES
E.S. = EACH SIDE	Lp = LAP LENGTH

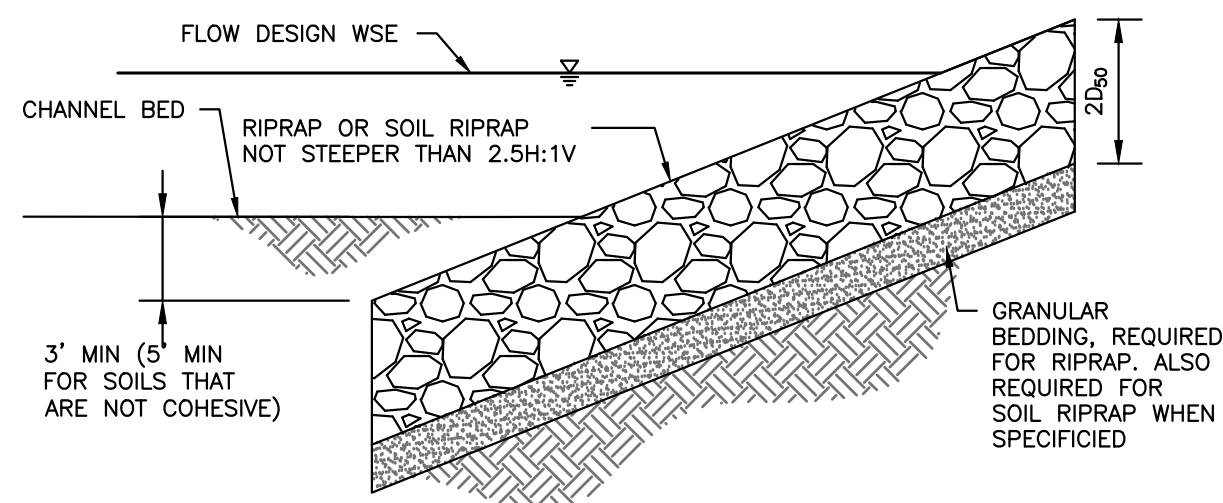


TYPICAL TOP CORNER WALL SECTION DETAIL

TYPICAL WALL CORNER PLAN VIEW



TYPICAL BOTTOM CORNER WALL SECTION DETAIL



SOIL RIPRAP NOTES:

- ELEVATION TOLERANCES FOR THE SOIL RIPRAP SHALL BE 0.10 FEET. THICKNESS OF SOIL RIPRAP SHALL BE NO LESS THAN THICKNESS SHOWN AND NO MORE THAN 2-INCHES GREATER THAN THE THICKNESS SHOWN.
- WHERE 'SOIL RIPRAP' IS DESIGNATED ON THE CONTRACT DRAWINGS, RIPRAP VOIDS ARE TO BE FILLED WITH NATIVE SOIL. THE RIPRAP SHALL BE PRE-MIXED WITH THE NATIVE SOIL AT THE FOLLOWING PROPORTIONS BY VOLUME: 65 PERCENT RIPRAP AND 35 PERCENT SOIL. THE SOIL USED FOR MIXING SHALL BE NATIVE TOPSOIL AND SHALL HAVE A MINIMUM FINES CONTENT OF 15 PERCENT. THE SOIL RIPRAP SHALL BE INSTALLED IN A MANNER THAT RESULTS IN A DENSE, INTERLOCKED LAYER OF RIPRAP WITH RIPRAP VOIDS FILLED COMPLETELY WITH SOIL. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERIAL CONSIST PRIMARILY OF SOIL; THE DENSITY AND INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL SHALL ESSENTIALLY BE THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT SOIL.
- WHERE SPECIFIED (TYPICALLY AS 'BURIED SOIL RIPRAP'), A SURFACE LAYER OF TOPSOIL SHALL BE PLACED OVER THE SOIL RIPRAP ACCORDING TO THE THICKNESS SPECIFIED ON THE CONTRACT DRAWINGS. THE TOPSOIL SURFACE LAYER SHALL BE COMPACTED TO APPROXIMATELY 85% OF MAXIMUM SURFACE DENSITY AND WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698, TOPSOIL SHALL BE ADDED TO ANY AREAS THAT SETTLE.
- ALL SOIL RIPRAP THAT IS BURIED WITH TOPSOIL SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY TOPSOIL PLACEMENT.

U.S. STANDARD SIEVE SIZE	PERCENT PASSING BY WEIGHT	
	TYPE I CDOT SECT. 703.01	TYPE II CDOT SECT. 703.09 CLASS A
3 INCHES	-	90 - 100
1 1/2 INCHES	-	-
3/4 INCHES	-	20 - 90
3/8 INCHES	100	-
#4	95 - 100	0 - 20
#16	45 - 80	-
#50	10 - 30	-
#100	2 - 10	-
#200	0 - 2	0 - 3

RIPRAP BEDDING

RIPRAP DESIGNATION	MINIMUM BEDDING THICKNESS (INCHES)		
	FINE-GRAINED SOILS 1		COARSE-GRAINED SOILS 2
	TYPE I (LOWER LAYER)	TYPE II (UPPER LAYER)	
VL (D50 = 6 IN)	4	4	6
L (D50 = 9 IN)	4	4	6
M (D50 = 12 IN)	4	4	6
H (D50 = 18 IN)	4	6	8
VH (D50 = 24 IN)	4	6	8

NOTES:
1. MAY SUBSTITUTE ONE 12-INCH LAYER OF TYPE II BEDDING. THE SUBSTITUTION OF ONE LAYER OF TYPE II BEDDING SHALL NOT BE PERMITTED AT DROP STRUCTURES. THE USE OF A COMBINATION OF FILTER FABRIC AND TYPE II BEDDING AT DROP STRUCTURES IS ACCEPTABLE.
2. FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D50* (INCHES)
TYPE VL	70 - 100	12	6
	50 - 70	9	
	35 - 50	6	
TYPE L	70 - 100	15	9
	50 - 70	12	
	35 - 50	9	
TYPE M	70 - 100	21	12
	50 - 70	18	
	35 - 50	12	
TYPE H	70 - 100	30	18
	50 - 70	24	
	35 - 50	18	
	2 - 10	6	

*D50 = MEAN ROCK SIZE

OUTLET STRUCTURE PLATE AND GRADING NOTES:

- ORIFICE PLATE:**
- PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE AND BETWEEN THE RESTRICTOR PLATE AND CONCRETE.
 - BOLT PLATE TO CONCRETE 12" MAX. ON CENTER.
- TRASH RACKS:**
- TRASH RACKS SHALL BE 1 1/2" SCH.40 STEEL PIPE, GALVANIZED, @ 6" CENTERS. SUPPORT BARS SHALL BE 1/2"x2" STEEL RECTANGULAR BARS, GALVANIZED, @ 36". ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE.
 - REMOVABLE TRASH RACK SECTIONS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED & LOCKABLE OR BOLTABLE ACCESS PANELS AS SHOWN ON THE PLANS.
 - STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
 - STRUCTURAL STEEL FOR GRATES, ORIFICE PLATES, AND BARS SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH CDOT STANDARD SPECIFICATIONS, SUBSECTION 712.06.
 - ALL HARDWARE, BOLTS, AND FASTENERS SHALL BE STAINLESS STEEL.
 - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL PLATES AND GRATING FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.

CAST-IN-PLACE STRUCTURAL NOTES:

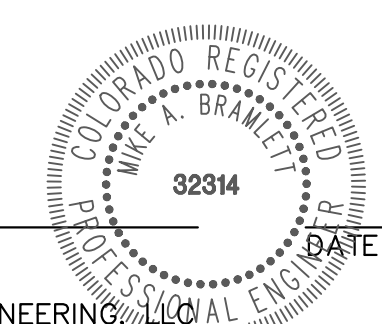
- ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
- ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
- DO NOT BACKFILL UNTIL CONCRETE HAS REACHED DESIGN STRENGTH, F.C.
- ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4".
- CONTRACTOR SHALL SUBMIT STEEL REINFORCING SHOP DRAWINGS FOR ALL CAST-IN-PLACE STRUCTURES FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION.
- HEADWALLS FOR PIPES SHALL BE CONSTRUCTED PER CDOT M-601-10.
- WINGWALLS SHALL BE CONSTRUCTED PER CDOT M-601-20.

ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND 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 PLANS.



Know what's below.
Call before you dig.



MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

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EHOWARDPC@GMAIL.COM
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BY	DATE	NO.	REVISION

H-SCALE	N/A	V-SCALE	N/A	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
				08/01/23			

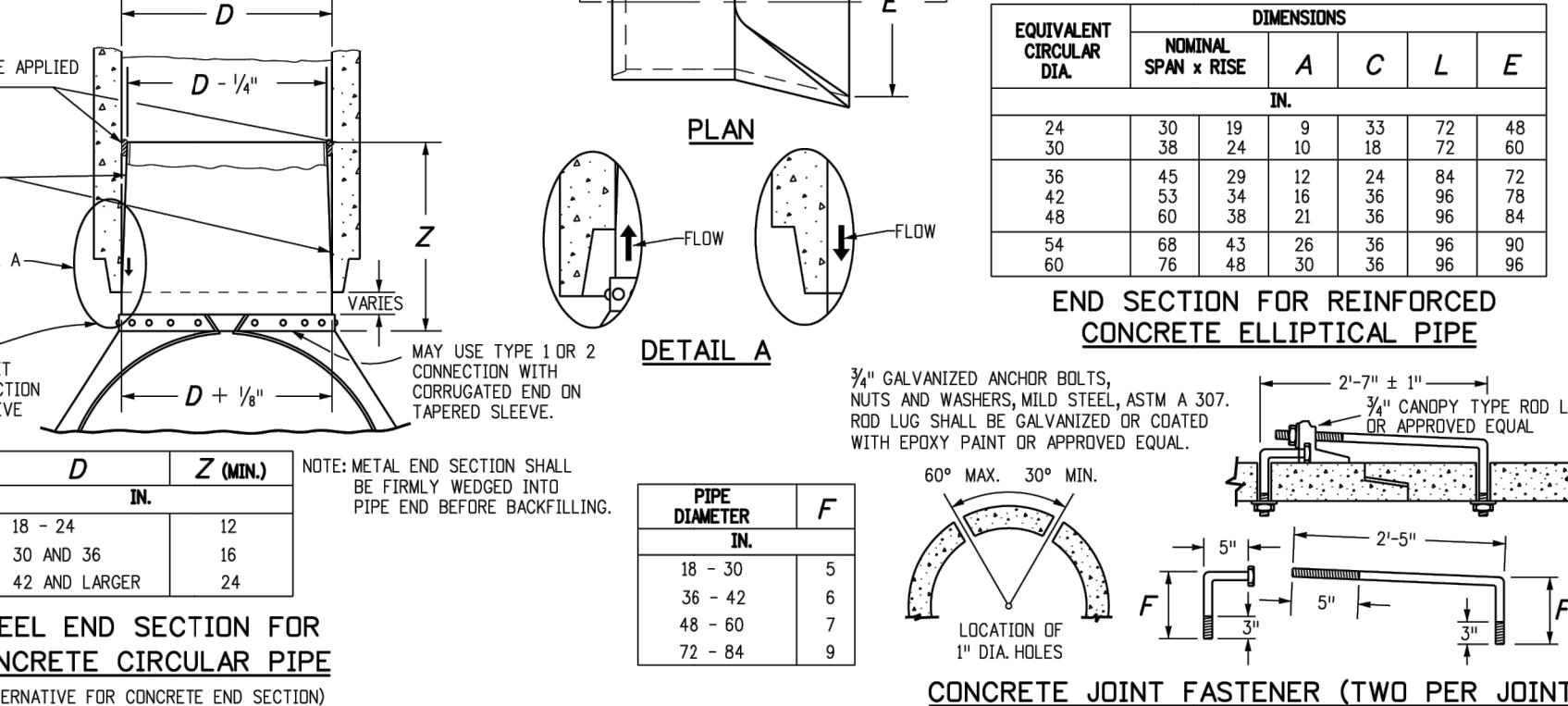
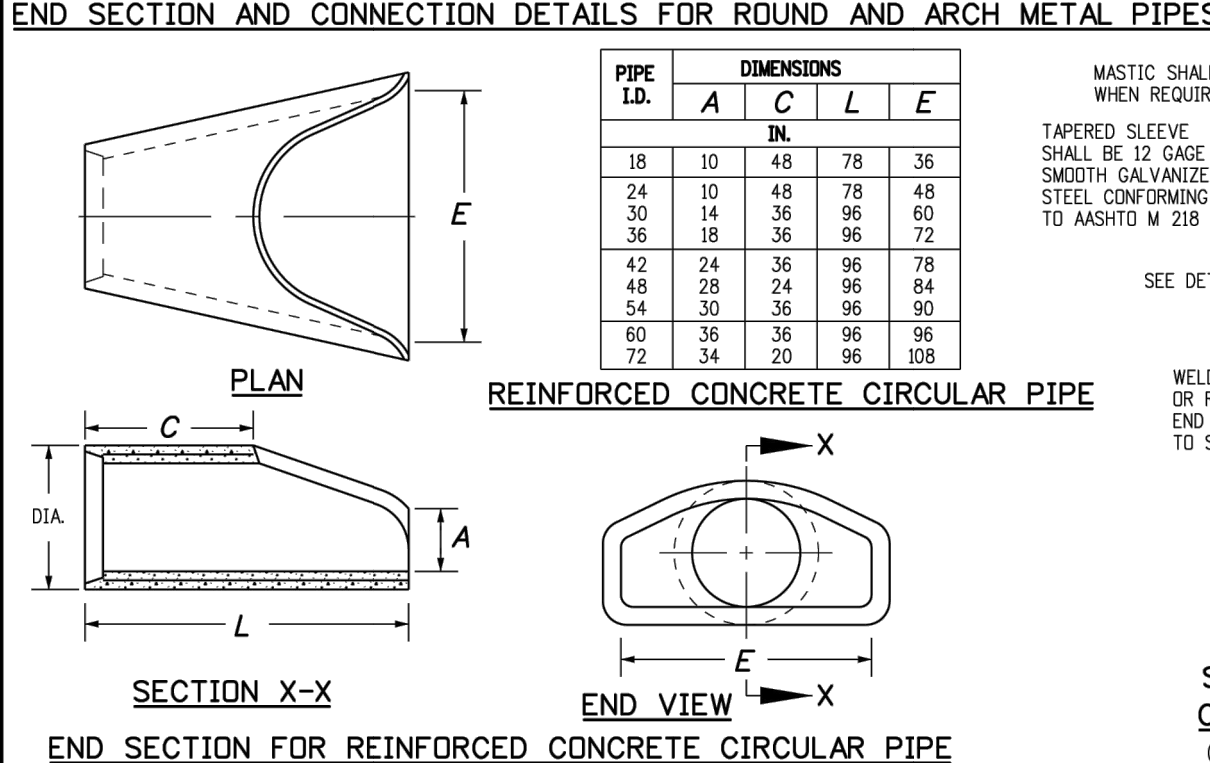
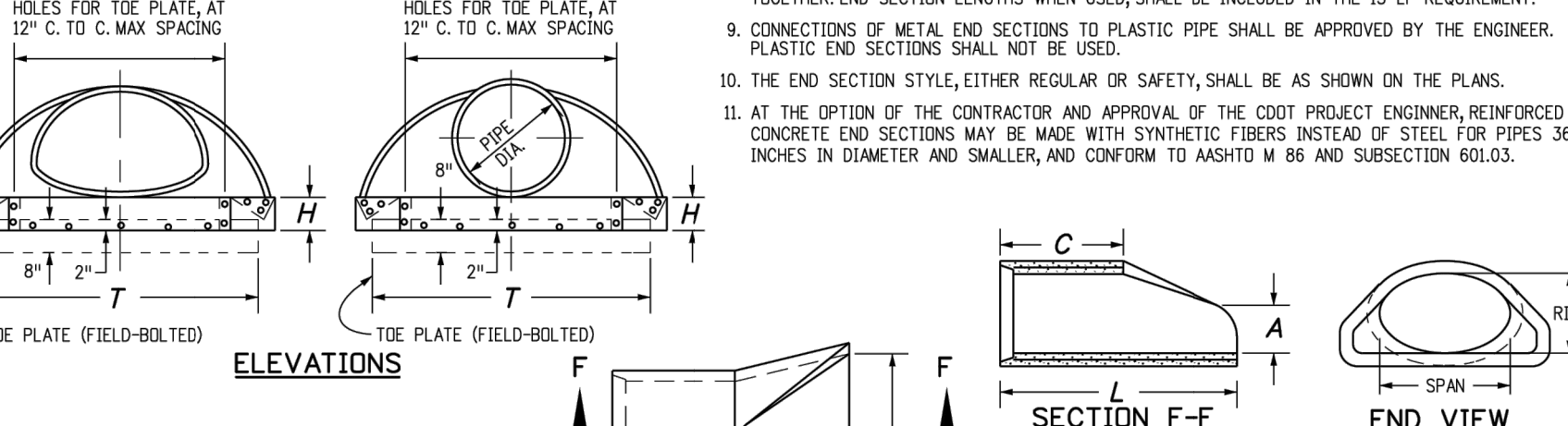
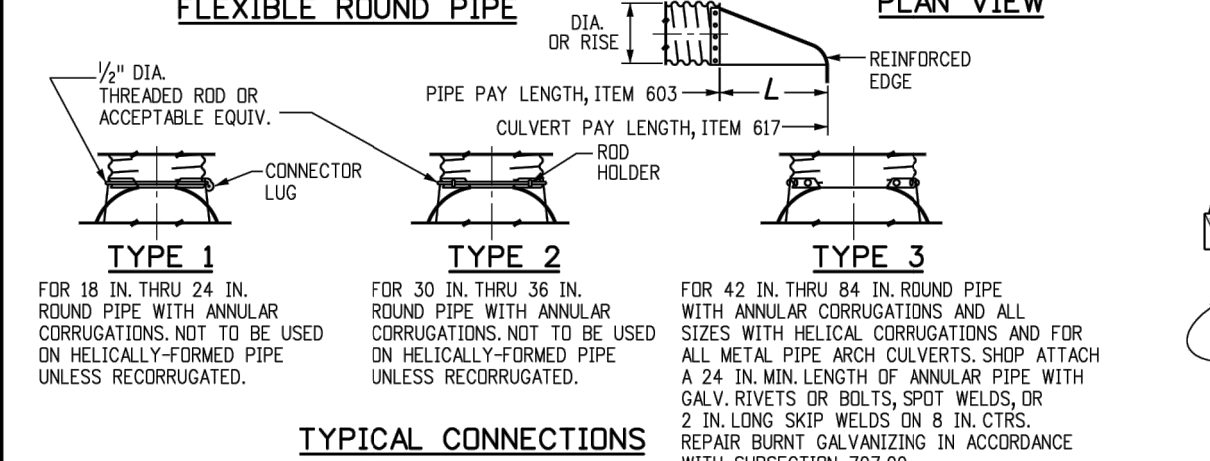
STERLING RECYCLING FACILITY
POND DETAILS
SHEET 13 OF 19
JOB NO. 25188.14

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PIPE DIA.	THICKNESS	DIMENSIONS					
		A	B	H	L	W	T
12	0.064	6	6	6	21	24	34
18	0.064	8	10	6	31	36	46
24	0.064	9	12	6	36	42	52
30	0.079	12	16	8	51	60	70
36	0.079	14	19	9	60	72	84
42	0.109	16	22	11	69	84	106
48	0.109	18	27	12	78	90	112
54	0.109	18	30	12	84	102	124
60	0.109	18	33	12	87	114	136
66	0.109	18	36	12	87	120	142
72	0.109	18	39	12	87	126	148
78	0.109	18	42	12	87	132	154
84	0.109	18	45	12	87	138	160

PIPE ARCH	THICKNESS	DIMENSIONS					
		A	B	H	L	W	T
21 x 15	0.064	7	12	6	23	26	48
24 x 18	0.064	8	12	6	28	42	52
28 x 20	0.064	9	14	6	32	48	58
35 x 24	0.079	10	16	6	38	60	70
42 x 29	0.079	12	19	6	46	75	85
49 x 33	0.109	13	21	9	53	85	103
57 x 38	0.109	14	24	12	63	90	108
64 x 43	0.109	16	30	12	70	102	120
71 x 47	0.109	18	33	12	77	114	132

- ### GENERAL NOTES
- DIMENSIONS OF END SECTIONS MAY VARY SLIGHTLY FROM THOSE SHOWN ON THE TABLES DUE TO DIFFERENT MANUFACTURERS' CONFIGURATIONS.
 - CONCRETE END SECTIONS SHALL BE FURNISHED WITH TONGUE OR GROOVE AS REQUIRED.
 - DESIGN LENGTH OF PIPE OR SIDE DRAIN IS BASED ON LENGTH OF END SECTION SHOWN IN TABLE. ANY ADDITIONAL PIPE REQUIRED TO PROVIDE DESIGN LENGTH SHALL BE FURNISHED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
 - THE INSIDE CONFIGURATION AND THE JOINT OF CONCRETE END SECTION AND PIPE SHALL MATCH TOGETHER. END SECTION LENGTHS WHEN USED SHALL BE INCLUDED IN THE 15 LF REQUIREMENT.
 - END SECTIONS FOR CMP ARCH PIPE SHALL MATCH THE DIMENSIONS OF THE PIPE SHOWN ON THE PLANS.
 - GALVANIZED TIE PLATE AS SHOWN IS REQUIRED ON END SECTIONS FOR CORRUGATED STEEL PIPE AND SHALL BE THE SAME THICKNESS AS END SECTIONS. TIE PLATE SHALL BE FIELD-BOLTED TO END SECTION WITH 3/8" GALVANIZED BOLTS AND WASHERS.
 - GALVANIZED STEEL SHALL CONFORM TO ASTM A 111M 218 OR M 232.
 - CONCRETE JOINT FASTENERS, WHEN SHOWN ON PLANS, SHALL BE INSTALLED SO THAT A MINIMUM OF 15 LINEAR FEET OF THE OUTLET END OF THE PIPE ARE MECHANICALLY LOCKED TOGETHER. END SECTION LENGTHS WHEN USED SHALL BE INCLUDED IN THE 15 LF REQUIREMENT.
 - CONNECTIONS OF METAL END SECTIONS TO PLASTIC PIPE SHALL BE APPROVED BY THE ENGINEER. PLASTIC END SECTIONS SHALL NOT BE USED.
 - THE END SECTION STYLE, EITHER REGULAR OR SAFETY, SHALL BE AS SHOWN ON THE PLANS.
 - AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF THE CDDT PROJECT ENGINEER, REINFORCED CONCRETE END SECTIONS MAY BE MADE WITH SYNTHETIC FIBERS INSTEAD OF STEEL FOR PIPES 36 INCHES IN DIAMETER AND SMALLER, AND CONFORM TO ASTM M 69 AND SUBSECTION 603.03.



Computer File Information	
Creation Date:	07/31/19
Designer Initials:	JBK
Last Modification Date:	07/31/19
Detailer Initials:	LTA
CAD Ver.:	MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions	
Date:	Comments
(C) (2)	
(C) (2)	
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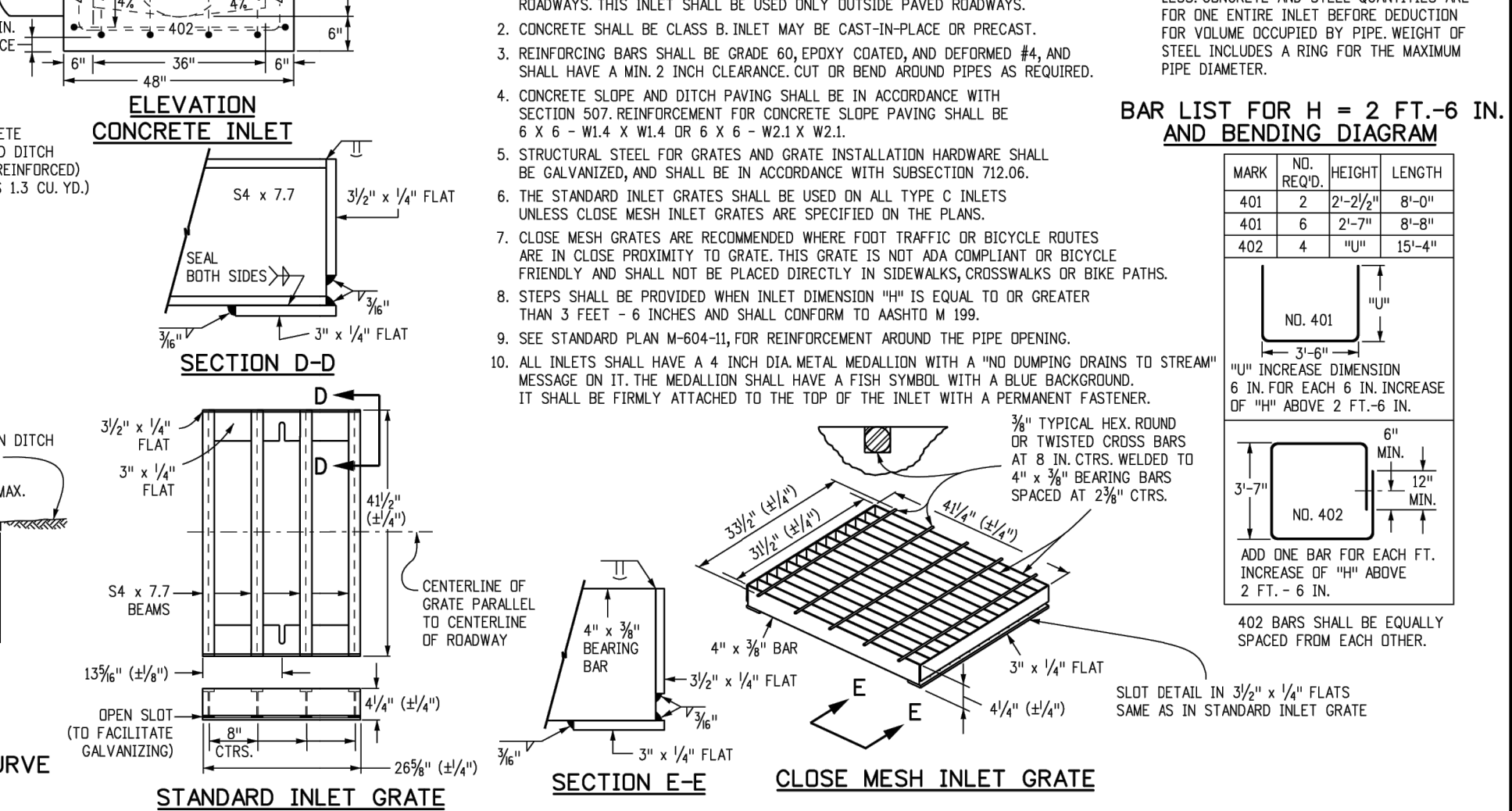
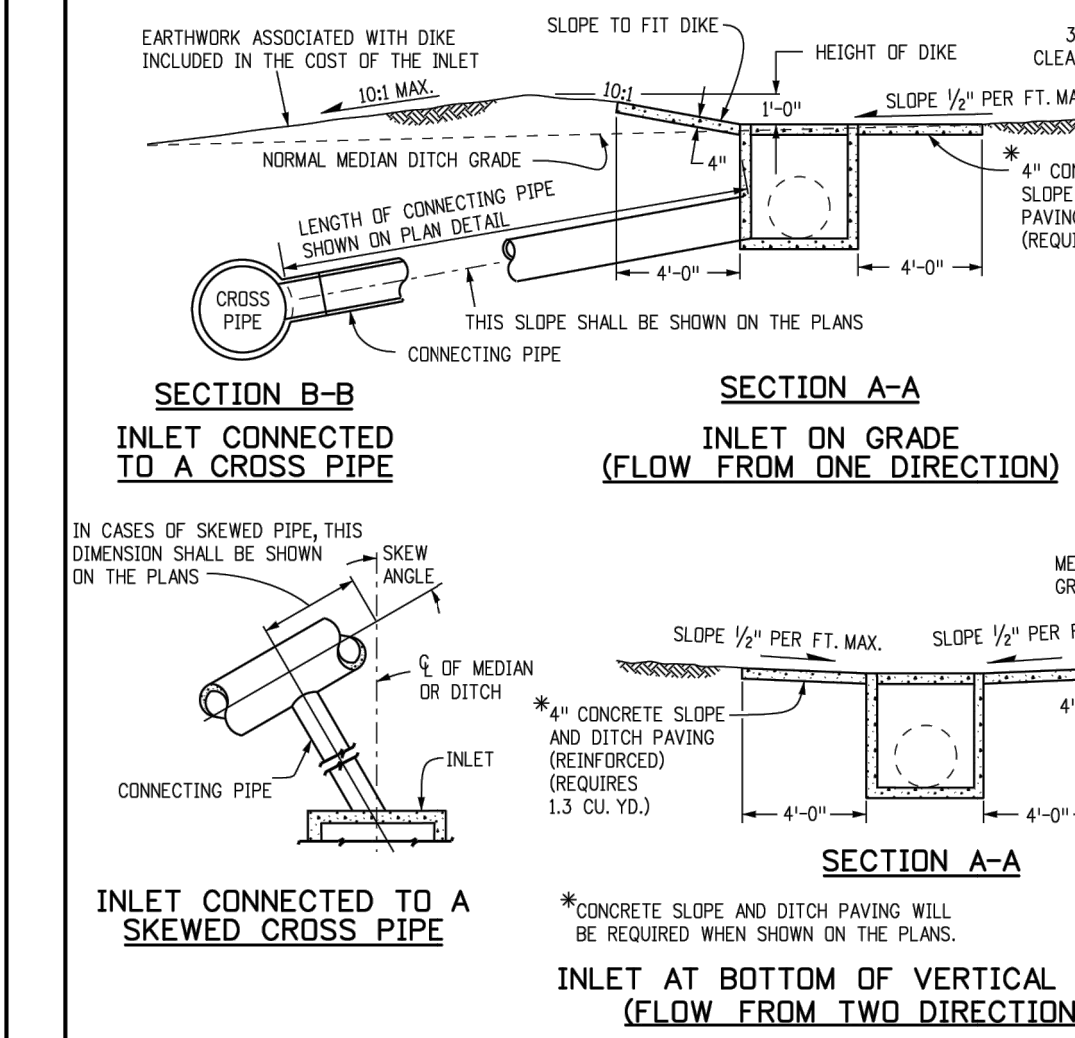
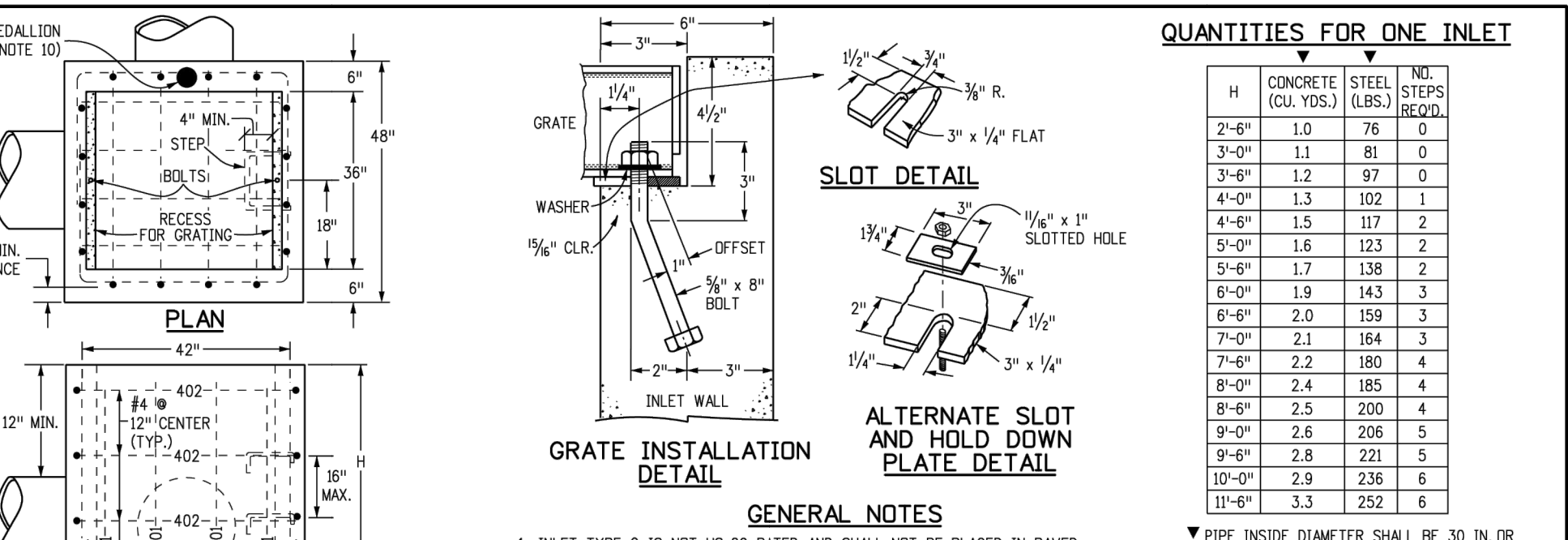
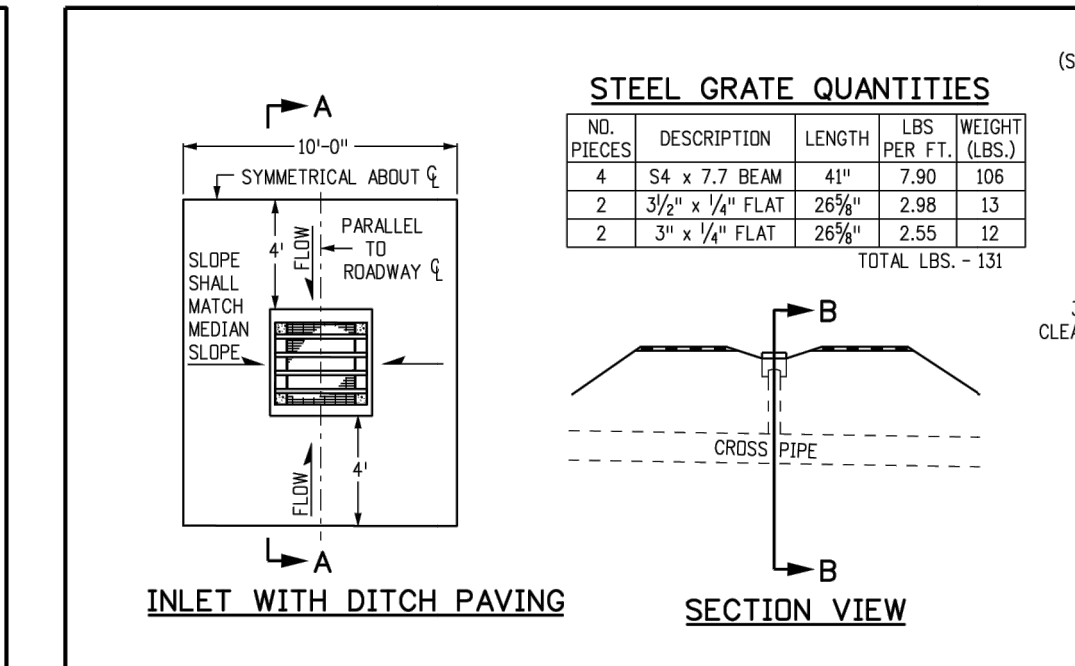
CONCRETE AND METAL END SECTIONS

STANDARD PLAN NO. M-603-10

Standard Sheet No. 1 of 1

Issued by the Project Development Branch: July 31, 2019

Project Sheet Number:



Computer File Information	
Creation Date:	07/31/19
Designer Initials:	JBK
Last Modification Date:	07/31/19
Detailer Initials:	LTA
CAD Ver.:	MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions	
Date:	Comments
(C) (2)	
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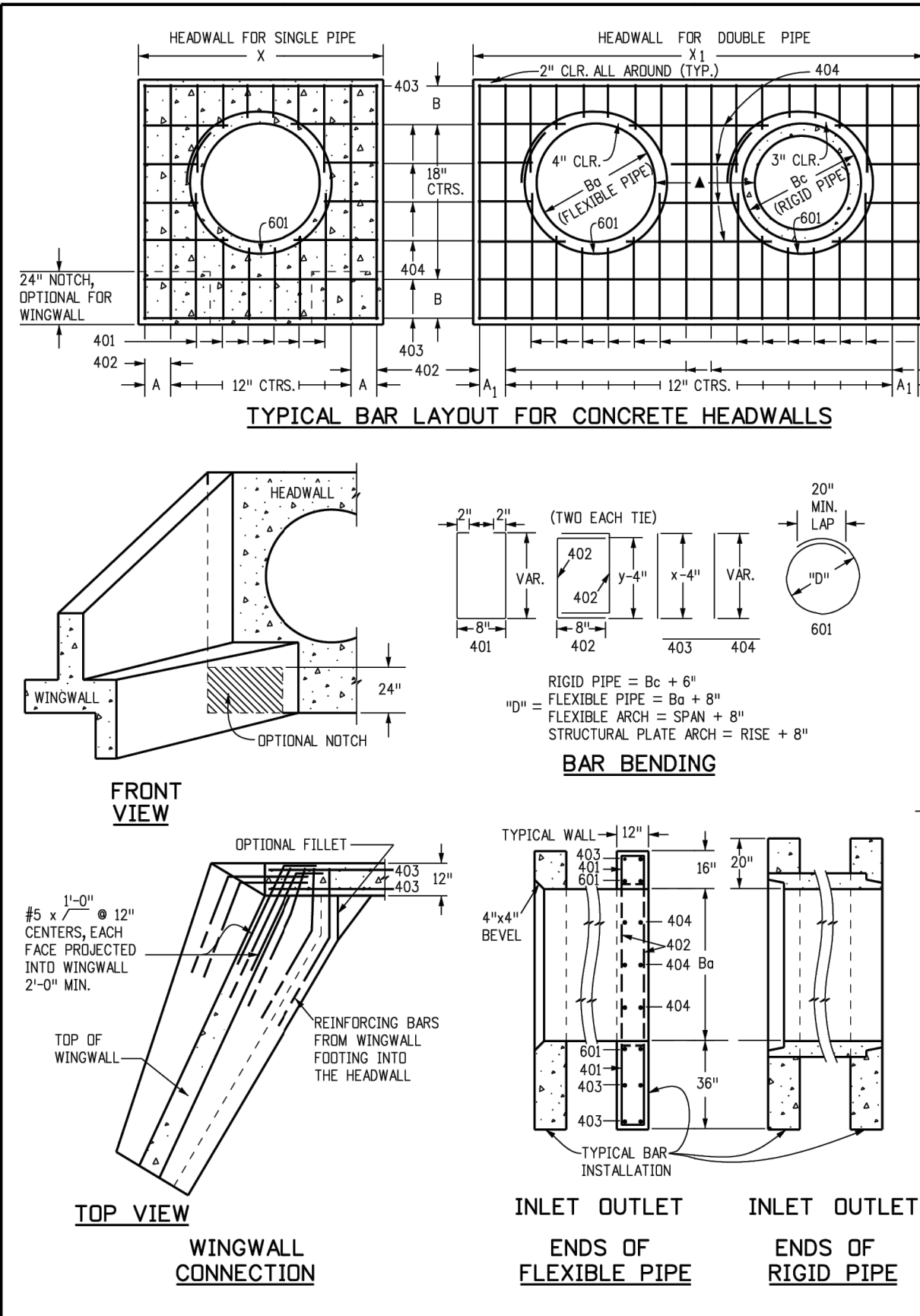
INLET, TYPE C

STANDARD PLAN NO. M-604-10

Standard Sheet No. 1 of 1

Issued by the Project Development Branch: July 31, 2019

Project Sheet Number:



GENERAL NOTES

- CONCRETE SHALL BE CLASS B.
- HEADWALL SHALL BE PERPENDICULAR TO THE PIPE UNLESS OTHERWISE SHOWN ON THE PLANS. TABULATED DIMENSIONS AND QUANTITIES MUST BE ADJUSTED FOR SKEWED INSTALLATIONS.
- FOR WINGWALL DETAILS, SEE STANDARD PLAN M-601-20.
- VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED FROM STEEL AND CONCRETE QUANTITIES.
- EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1/4 IN.
- ALL REINFORCING BARS SHALL HAVE A 2 IN. MINIMUM CLEARANCE.
- WHEN TWO OR MORE PIPES ARE LAID SIDE BY SIDE, THEY SHALL BE PLACED SO THAT THE ADJACENT PIPES WILL BE 1/2" INSIDE DIAMETER APART, OR 1/2" INSIDE DIAMETER APART, OR 3 FT. APART (INCLUDING WALL THICKNESS), WHICHEVER IS LESS.
- ADD 0.89 x (X OR X1) (LBS.) WHEN APRON IS REQUIRED.

HEADWALL FOR FLEXIBLE PIPE ARCH

EQUIV. SPAN	RISE	X	X1	CONCRETE				STEEL				
				IN.	FT.-IN.	SQ. FT.	CU. YD.	SQ. FT.	DBL. CU. YD.	SQ. FT.	DBL. CU. YD.	
54	65	8-9	8 1/2	15-6	7	9-2	17	20	2.12	3.53	1209	364
60	72	9-6	9 1/2	17-0	10	9-8	11	21	2.35	3.99	236	414
66	78	11-0	11 1/2	18-6	11	10-10	14	22	2.62	4.44	249	453
72	84	12-6	12 1/2	20-0	10	10-8	12	23	2.89	4.91	270	476
78	90	13-9	13 1/2	21-3	11	11-2	14	24	3.11	5.29	306	527
84	100	15-6	15 1/2	22-6	7	11-8	14	25	3.36	5.68	333	572
90	107	17-3	17 1/2	23-9	8	12-2	17	26	3.66	6.08	335	593
96	114	19-0	19 1/2	25-0	10	12-8	11	27	3.84	6.48	379	649
102	121	20-9	21 1/2	26-3	11	13-2	14	28	4.24	6.89	400	664
108	128	22-6	23 1/2	27-6	7	13-8	17	29	4.54	7.30	424	707

HEADWALL FOR FLEXIBLE ROUND PIPE

EQUIV. SPAN	RISE	X	X1	CONCRETE				STEEL				
				IN.	FT.-IN.	SQ. FT.	DBL. CU. YD.	SQ. FT.	DBL. CU. YD.			
54	65	8-9	8 1/2	15-6	7	9-2	17	20	2.12	3.53	1209	364
60	72	9-6	9 1/2	17-0	10	9-8	11	21	2.35	3.99	236	414
66	78	11-0	11 1/2	18-6	11	10-10	14	22	2.62	4.44	249	453
72	84	12-6	12 1/2	20-0	10	10-8	12	23	2.89	4.91	270	476
78	90	13-9	13 1/2	21-3	11	11-2	14	24	3.11	5.29	306	527
84	100	15-6	15 1/2	22-6	7	11-8	14	25	3.36	5.68	333	572
90	107	17-3	17 1/2	23-9	8	12-2	17	26	3.66	6.08	335	593
96	114	19-0	19 1/2	25-0	10	12-8	11	27	3.84	6.48	379	649
102	121	20-9	21 1/2	26-3	11	13-2	14	28	4.24	6.89	400	664
108	128	22-6	23 1/2	27-6	7	13-8	17	29	4.54	7.30	424	707

HEADWALL FOR STRUCTURAL PLATE ARCH

EQUIV. SPAN	RISE	X	X1	CONCRETE				STEEL				
				IN.	FT.-IN.	SQ. FT.	DBL. CU. YD.	SQ. FT.	DBL. CU. YD.			
66	6-1	4-7	10-1	10 1/2	10	11	8-11	15 1/2	2.52	4.70	232	424
75	6-10	5-1	11-0	10	10	10	8-5	10	2.80	5.25	285	509
84	7-11	5-7	11-11	9 1/2	22-10	9	9-11	12 1/2	3.08	5.79	290	547
93	8-10	6-1	12-10	9	24-8	8	8-10	15 1/2	3.36	6.33	309	622
102	9-9	6-7	13-9	8 1/2	26-6	7	10-11	16 1/2	3.63	6.86	379	673
111	10-10	7-1	14-11	12 1/2	28-10	9	11-5	17 1/2	4.09	7.67	377	711
120	11-10	7-7	15-10	10	30-8	8	11-11	18 1/2	4.36	8.28	395	731
132	12-10	8-4	16-10	9	32-8	8	12-8	11	4.75	9.03	441	839
141	14-1	8-9	18-1	10 1/2	35-2	11	13-1	13 1/2	5.17	9.86	448	831
150	15-4	9-3	19-4	12	37-8	8	13-7	16 1/2	5.69	10.89	490	953
159	15-10	9-10	19-10	9	38-8	8	14-2	11	5.89	11.25	534	1019

SKIEW FACTOR TABLE

SKIEW ANGLE °	90	85	80	75	70	65	60	55	50	45	40	35	30
FACTOR (CONCRETE)	1.000	1.004	1.015	1.035	1.064	1.103	1.155	1.221	1.305	1.414	1.556	1.743	2.000

Computer File Information	
Creation Date:	07/31/19
Designer Initials:	JBK
Last Modification Date:	07/31/19
Detailer Initials:	LTA
CAD Ver.:	MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions	
Date:	Comments
(C) (2)	
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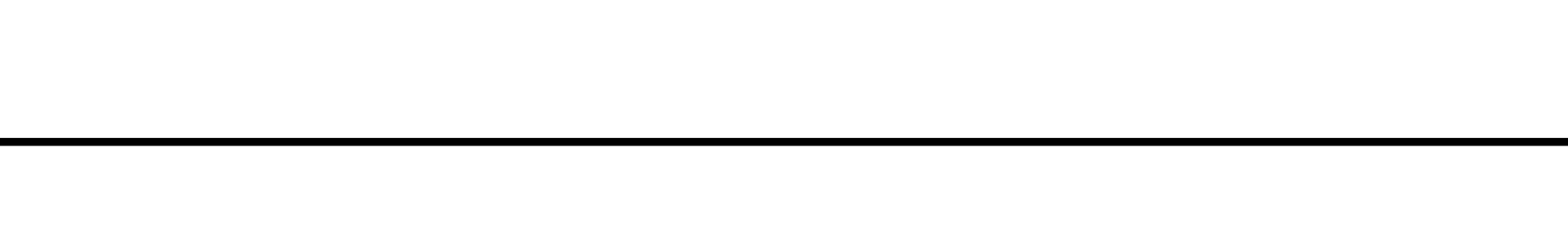
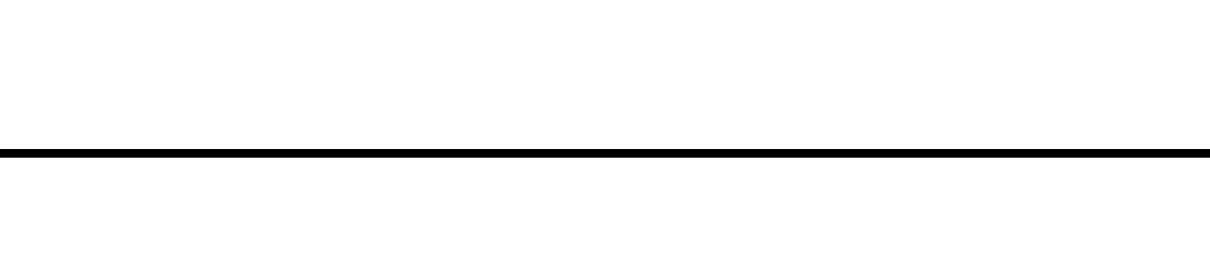
HEADWALL FOR PIPES

STANDARD PLAN NO. M-601-10

Standard Sheet No. 1 of 1

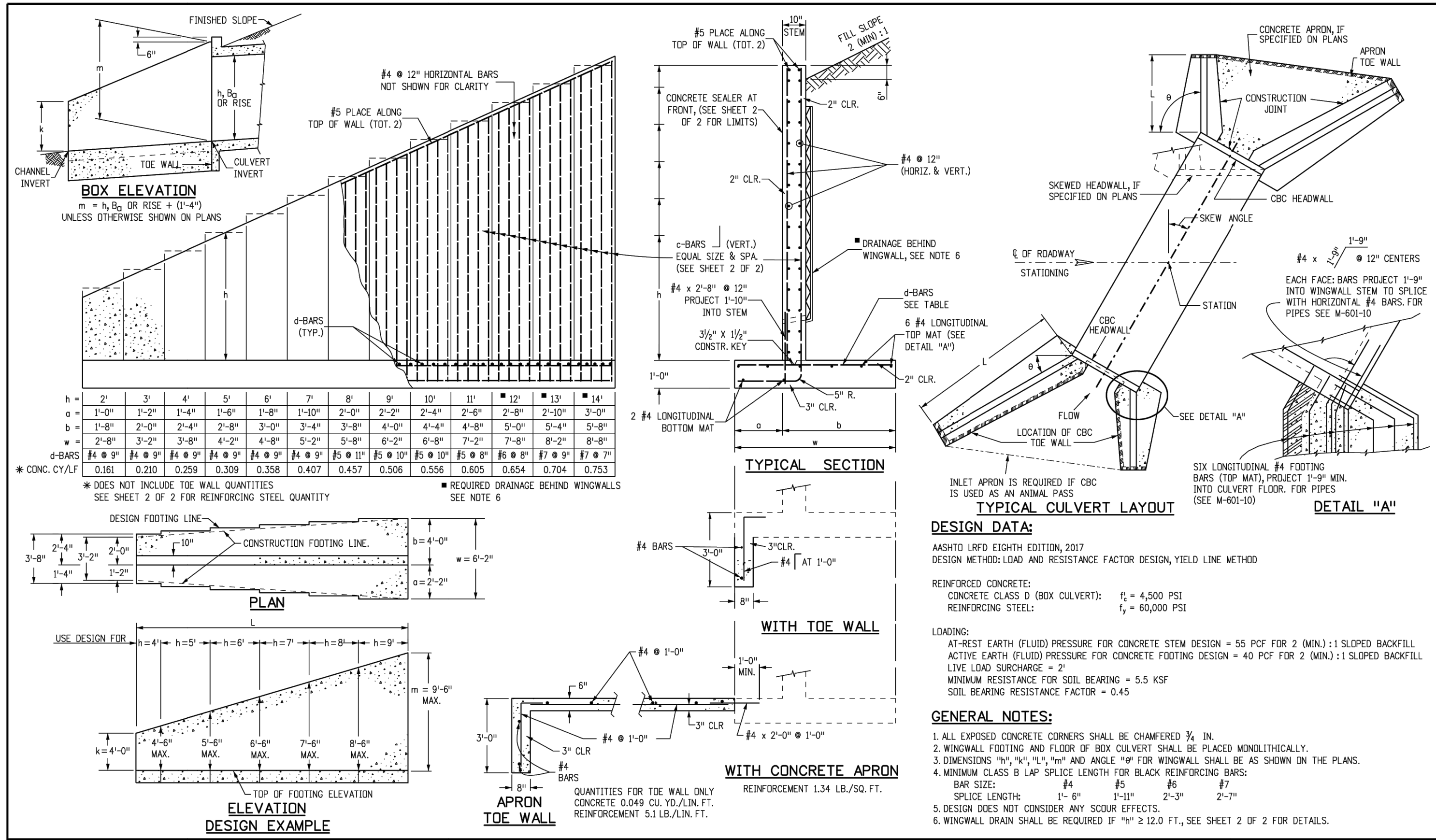
Issued by the Project Development Branch: July 31, 2019

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Computer File Information	
Creation Date:	07/31/19
Designer Initials:	JBK
Last Modification Date:	07/31/19
Detailer Initials:	LTA
CAD Ver.:	MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions	
Date:	Comments
(C) (2)	
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Computer File Information	
Creation Date: 07/31/19	Designer Initials: JBK
Last Modification Date: 07/31/19	Detailer Initials: LTA
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

Sheet Revisions	
Date:	Comments:

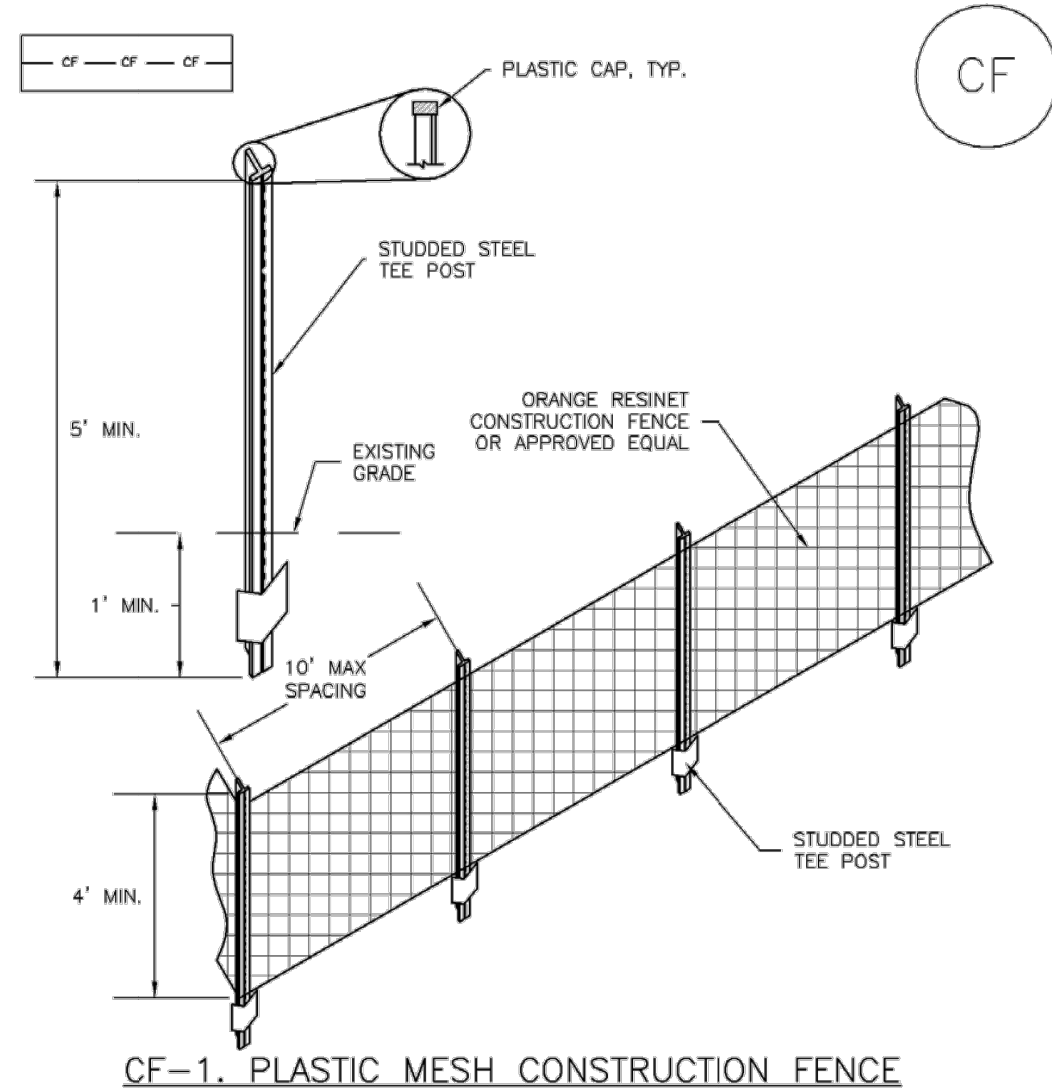
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WINGWALLS FOR PIPE OR BOX CULVERTS
STANDARD PLAN NO. M-601-20
Standard Sheet No. 1 of 2
Issued by the Project Development Branch: July 31, 2019
Project Sheet Number:

Computer File Information	Sheet Revisions	Colorado Department of Transportation	WINGWALLS FOR PIPE OR BOX CULVERTS	STANDARD PLAN NO.
Creation Date: 07/31/19	Date:	2829 West Howard Place	STANDARD PLAN NO. M-601-20	Standard Sheet No. 1 of 2
Designer Initials: JBK	Comments:	CDOT HQ, 3rd Floor		
Last Modification Date: 07/31/19		Denver, CO 80204	Standard Sheet No. 1 of 2	Project Sheet Number:
Detailer Initials: LTA		Phone: 303-757-9021 FAX: 303-757-9868		
CAD Ver.: MicroStation V8		Project Development Branch JBK	Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:

c-BARS AND REINFORCING STEEL QUANTITY (EXCLUDE TOE WALL)		* REINFORCING STEEL QUANTITY INCLUDES STEM AND FOOTING QUANTITIES, BUT DOES NOT INCLUDE TOE WALL QUANTITIES.																																															
L (MULTIPLE OF m)	k (FT)	≤ (2.0 x m)				≤ (1.5 x m)				≤ (2.0 x m)				≤ (2.25 x m)				≤ (2.5 x m)				≤ (2.75 x m)				≤ (3.0 x m)				≤ (3.25 x m)				≤ (3.5 x m)															
		c-BARS	* REINF. LB./L.F.	* REINF. LB./L.F.	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	* REINF. LB./L.F.	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	* REINF. LB./L.F.	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	* REINF. LB./L.F.	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	* REINF. LB./L.F.	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	* REINF. LB./L.F.	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	* REINF. LB./L.F.	* REINF. LB./L.F.	c-BARS	* REINF. LB./L.F.	* REINF. LB./L.F.	* REINF. LB./L.F.																
14	4	#4 @ 10"	53.60	#5 @ 10"	57.55	#5 @ 10"	57.10	#5 @ 8"	60.22	#5 @ 7"	62.43	#5 @ 7"	62.09	#5 @ 6"	65.38	#5 @ 6"	65.15	#6 @ 8"	67.10	#6 @ 8"	66.94	#6 @ 7"	70.66	#6 @ 7"	70.51	#6 @ 6"	73.90	#6 @ 6"	73.74	#6 @ 5"	77.13	#6 @ 5"	76.97	#6 @ 4"	80.36	#6 @ 4"	80.20	#6 @ 3"	83.59	#6 @ 3"	83.43	#6 @ 2"	86.82	#6 @ 2"	86.66	#6 @ 1"	90.05	#6 @ 1"	89.89
14	5	#4 @ 10"	55.86	#5 @ 10"	60.46	#5 @ 10"	59.60	#5 @ 8"	62.89	#5 @ 7"	65.23	#5 @ 7"	64.88	#5 @ 6"	68.34	#5 @ 6"	68.11	#6 @ 8"	70.17	#6 @ 8"	70.00	#6 @ 7"	73.90	#6 @ 7"	73.74	#6 @ 6"	77.13	#6 @ 6"	76.97	#6 @ 5"	80.36	#6 @ 5"	80.20	#6 @ 4"	83.59	#6 @ 4"	83.43	#6 @ 3"	86.82	#6 @ 3"	86.66	#6 @ 2"	90.05	#6 @ 2"	89.89				
14	6	#5 @ 10"	64.43	#6 @ 10"	70.60	#6 @ 10"	69.69	#6 @ 8"	74.93	#6 @ 8"	74.45	#6 @ 7"	78.30	#6 @ 6"	83.64	#6 @ 6"	83.40	#6 @ 6"	83.22	#6 @ 6"	83.05	#6 @ 6"	86.86	#6 @ 6"	86.70	#6 @ 5"	90.05	#6 @ 5"	89.89	#6 @ 4"	93.18	#6 @ 4"	93.02	#6 @ 3"	96.15	#6 @ 3"	95.99	#6 @ 2"	99.26	#6 @ 2"	99.10	#6 @ 1"	102.17	#6 @ 1"	102.01				
14	7	#5 @ 10"	67.29	#6 @ 10"	73.76	#6 @ 10"	72.83	#6 @ 8"	78.32	#6 @ 8"	77.84	#6 @ 7"	81.87	#6 @ 6"	87.45	#6 @ 6"	87.21	#6 @ 6"	87.02	#6 @ 6"	86.86	#6 @ 6"	90.05	#6 @ 6"	89.89	#6 @ 5"	93.18	#6 @ 5"	93.02	#6 @ 4"	96.15	#6 @ 4"	95.99	#6 @ 3"	99.26	#6 @ 3"	99.10	#6 @ 2"	102.17	#6 @ 2"	102.01	#6 @ 1"	105.00	#6 @ 1"	104.84				
14	8	#5 @ 8"	74.71	#6 @ 8"	83.46	#6 @ 8"	82.09	#6 @ 6"	92.54	#6 @ 7"	99.47	#6 @ 7"	99.08	#6 @ 6"	107.11	#6 @ 6"	106.68	#6 @ 6"	106.68	#6 @ 6"	106.49	#6 @ 6"	109.66	#6 @ 6"	109.50	#6 @ 5"	112.63	#6 @ 5"	112.47	#6 @ 4"	115.54	#6 @ 4"	115.38	#6 @ 3"	118.29	#6 @ 3"	118.13	#6 @ 2"	121.00	#6 @ 2"	120.84	#6 @ 1"	123.55	#6 @ 1"	123.39				
14	9	#5 @ 8"	78.50	#6 @ 8"	87.23	#6 @ 8"	85.03	#6 @ 6"	96.72	#6 @ 7"	103.93	#6 @ 7"	103.54	#6 @ 6"	111.90	#6 @ 6"	111.65	#6 @ 6"	111.65	#6 @ 6"	111.45	#6 @ 6"	114.62	#6 @ 6"	114.46	#6 @ 5"	117.53	#6 @ 5"	117.37	#6 @ 4"	120.28	#6 @ 4"	120.12	#6 @ 3"	122.93	#6 @ 3"	122.77	#6 @ 2"	125.48	#6 @ 2"	125.32	#6 @ 1"	127.83	#6 @ 1"	127.67				
13	4	#4 @ 10"	50.51	#4 @ 10"	49.25	#5 @ 10"	53.71	#5 @ 10"	53.09	#5 @ 10"	52.36	#5 @ 9"	55.85	#5 @ 9"	55.54	#5 @ 8"	57.85	#5 @ 8"	57.54	#5 @ 8"	57.23	#5 @ 7"	60.17	#5 @ 7"	59.86	#5 @ 6"	62.80	#5 @ 6"	62.49	#5 @ 5"	65.43	#5 @ 5"	65.12	#5 @ 4"	68.06	#5 @ 4"	67.75	#5 @ 3"	70.69	#5 @ 3"	70.38	#5 @ 2"	73.32	#5 @ 2"	73.01	#5 @ 1"	75.95	#5 @ 1"	75.64
13	5	#4 @ 10"	52.66	#4 @ 10"	51.37	#5 @ 10"	56.09	#5 @ 10"	55.46	#5 @ 10"	54.99	#5 @ 9"	58.29	#5 @ 9"	58.08	#5 @ 8"	60.51	#5 @ 8"	60.33	#5 @ 8"	60.17	#5 @ 7"	63.11	#5 @ 7"	62.80	#5 @ 6"	65.74	#5 @ 6"	65.43	#5 @ 5"	68.37	#5 @ 5"	68.06	#5 @ 4"	71.00	#5 @ 4"	70.69	#5 @ 3"	73.63	#5 @ 3"	73.32	#5 @ 2"	76.26	#5 @ 2"	75.95	#5 @ 1"	78.89	#5 @ 1"	78.58
13	6	#4 @ 10"	54.92	#5 @ 10"	59.48	#5 @ 9"	60.31	#6 @ 9"	67.56	#6 @ 9"	67.08	#6 @ 9"	66.70	#6 @ 8"	69.53	#6 @ 8"	69.28	#6 @ 8"	69.12	#6 @ 8"	68.96	#6 @ 7"	71.90	#6 @ 7"	71.59	#6 @ 6"	74.53	#6 @ 6"	74.22	#6 @ 5"	77.16	#6 @ 5"	76.85	#6 @ 4"	79.79	#6 @ 4"	79.48	#6 @ 3"	82.42	#6 @ 3"	82.11	#6 @ 2"	85.05	#6 @ 2"	84.74	#6 @ 1"	87.67	#6 @ 1"	87.36
13	7	#4 @ 10"	57.36	#5 @ 10"	62.16	#5 @ 9"	63.05	#6 @ 9"	70.66	#6 @ 9"	70.18	#6 @ 9"	69.78	#6 @ 8"	72.75	#6 @ 8"	72.50	#6 @ 8"	72.34	#6 @ 8"	72.18	#6 @ 7"	75.12	#6 @ 7"	74.81	#6 @ 6"	77.74	#6 @ 6"	77.43	#6 @ 5"	80.36	#6 @ 5"	80.05	#6 @ 4"	83.00	#6 @ 4"	82.69	#6 @ 3"	85.63	#6 @ 3"	85.32	#6 @ 2"	88.26	#6 @ 2"	87.95	#6 @ 1"	90.89	#6 @ 1"	90.58
13	8	#5 @ 10"	66.39	#6 @ 10"	72.82	#6 @ 8"	77.87	#6 @ 7"	85.68	#6 @ 7"	85.19	#6 @ 6"	86.67	#6 @ 6"	86.37	#6 @ 6"	88.38	#6 @ 6"	88.13	#6 @ 6"	87.97	#6 @ 5"	90.90	#6 @ 5"	90.59	#6 @ 4"	93.52	#6 @ 4"	93.21	#6 @ 3"	96.15	#6 @ 3"	95.84	#6 @ 2"	98.78	#6 @ 2"	98.47	#6 @ 1"	101.41	#6 @ 1"	101.10								
13	9	#5 @ 10"	69.37	#6 @ 10"	76.10	#6 @ 8"	81.49	#6 @ 7"	89.37	#6 @ 7"	88.87	#6 @ 6"	90.59	#6 @ 6"	90.29	#6 @ 6"	92.30	#6 @ 6"	92.05	#6 @ 6"	91.89	#6 @ 5"	94.82	#6 @ 5"	94.51	#6 @ 4"	97.44	#6 @ 4"	97.13	#6 @ 3"	100.07	#6 @ 3"	99.76	#6 @ 2"	102.70	#6 @ 2"	102.39	#6 @ 1"	105.33	#6 @ 1"	105.02								
12	2	#4 @ 10"	43.91	#4 @ 10"	42.65	#4 @ 10"	41.82	#4 @ 10"	41.22	#4 @ 10"	40.78	#4 @ 9"	41.29	#4 @ 9"	40.81	#4 @ 9"	40.44	#4 @ 9"	40.07	#4 @ 9"	39.70	#4 @ 8"	40.21	#4 @ 8"	39.84	#4 @ 8"	39.47	#4 @ 8"	39.10	#4 @ 7"	39.61	#4 @ 7"	39.24	#4 @ 7"	38.87	#4 @ 7"	38.50	#4 @ 6"	39.01	#4 @ 6"	38.64	#4 @ 6"	38.27	#4 @ 6"	37.90	#4 @ 5"	38.41	#4 @ 5"	38.04
12	3	#4 @ 10"	45.82	#4 @ 10"	44.55	#4 @ 10"	43.71	#4 @ 10"	43.11	#4 @ 10"	42.68	#4 @ 9"	43.22	#4 @ 9"	42.75	#4 @ 9"	42.38	#4 @ 9"	42.01	#4 @ 9"	41.64	#4 @ 8"	42.15	#4 @ 8"	41.78	#4 @ 8"	41.41	#4 @ 8"	41.04	#4 @ 7"	41.55	#4 @ 7"	41.18	#4 @ 7"	40.81	#4 @ 7"	40.44	#4 @ 6"	40.95	#4 @ 6"	40.58	#4 @ 6"	40.21	#4 @ 6"	39.84	#4 @ 5"	40.35	#4 @ 5"	39.98
12	4	#4 @ 10"	47.80	#4 @ 10"	46.51	#4 @ 10"	45.65	#5 @ 10"	50.06	#5 @ 10"	49.59	#5 @ 10"	49.23	#5 @ 10"	48.84	#5 @ 10"	48.49	#5 @ 9"	50.00	#5 @ 9"	49.65	#5 @ 9"	50.16	#5 @ 9"	49.81	#5 @ 8"	50.32	#5 @ 8"	49.97	#5 @ 8"	50.48	#5 @ 8"	50.13	#5 @ 8"	49.78	#5 @ 7"	50.29	#5 @ 7"	49.94	#5 @ 7"	50.45	#5 @ 7"	50.10	#5 @ 6"	50.61	#5 @ 6"	50.26		
12	5	#4 @ 10"	49.84	#4 @ 10"	48.53	#4 @ 10"	47.66	#5 @ 10"	52.33	#5 @ 10"	51.85	#5 @ 10"	51.48	#5 @ 10"	51.09	#5 @ 10"	50.74	#5 @ 9"	52.33	#5 @ 9"	51.98	#5 @ 9"	52.49	#5 @ 9"	52.14	#5 @ 8"	52.65	#5 @ 8"	52.30	#5 @ 8"	52.81	#5 @ 8"	52.46	#5 @ 7"	52.97	#5 @ 7"	52.62	#5 @ 7"	53.13	#5 @ 7"	52.78	#5 @ 6"	53.29	#5 @ 6"	52.94				
12	6	#4 @ 10"	51.99	#4 @ 10"	50.65	#5 @ 10"	55.34	#5 @ 8"	59.41	#5 @ 8"	57.83	#5 @ 8"	57.45	#5 @ 7"	60.60	#5 @ 7"	60.22	#5 @ 7"	59.84	#5 @ 7"	59.46	#5 @ 6"	60.97	#5 @ 6"	60.59	#5 @ 6"	61.10	#5 @ 6"	60.72	#5 @ 5"	63.87	#5 @ 5"	63.49	#5 @ 5"	63.00	#5 @ 4"	64.51	#5 @ 4"	64.13	#5 @ 4"	64.64	#5 @ 4"	64.26	#5 @ 3"	65.77	#5 @ 3"	65.39		
12	7	#4 @ 10"	54.30	#5 @ 10"	58.80	#5 @ 10"	57.87	#5 @ 8"	61.10	#5 @ 8"	60.61	#5 @ 8"	60.23	#5 @ 7"	63.43	#5 @ 7"	63.05	#5 @ 7"	62.67	#5 @ 7"	62.29	#5 @ 6"	64.80	#5 @ 6"	64.42	#5 @ 6"	64.93	#5 @ 6"	64.55	#5 @ 5"	67.70	#5 @ 5"	67.32	#5 @ 5"	66.83	#5 @ 4"	68.34	#5 @ 4"	67.96	#5 @ 4"	68.47	#5 @ 4"	68.09	#5 @ 3"	69.60	#5 @ 3"	69.22		
12	8	#5 @ 10"	62.91	#5 @ 10"	61.45	#5 @ 7"	67.46	#5 @ 6"	70.68	#5 @ 6"	70.20	#6 @ 7"	76.44	#6 @ 7"	76.13	#6 @ 7"	75.87	#6 @ 6"	78.88	#6 @ 6"	78.50	#6 @ 6"	81.51	#6 @ 6"	81.13	#6 @ 5"	84.14	#6 @ 5"	83.76	#6 @ 4"	86.77	#6 @ 4"	86.39	#6 @ 4"	85.90	#6 @ 3"	88.91	#6 @ 3"	88.53	#6 @ 3"	91.54	#6 @ 3"	91.16						
12	9	#5 @ 10"	65.64	#5 @ 10"	64.15	#5 @ 7"	70.44	#5 @ 6"	73.82	#5 @ 6"	73.33	#6 @ 7"	79.86	#6 @ 7"	79.54	#6 @ 7"	79.28	#6 @ 6"	82.29	#6 @ 6"	81.91	#6 @ 6"	84.92	#6 @ 6"	84.54	#6 @ 5"	87.55	#6 @ 5"	87.17	#6 @ 4"	90.18	#6 @ 4"	89.80	#6 @ 4"	89.31	#6 @ 3"	92.32	#6 @ 3"	91.94	#6 @ 3"	94.95	#6 @ 3"	94.57						
11	2	#4 @ 10"	41.70	#4 @ 10"	40.42	#4 @ 10"	39.57	#4 @ 10"	38.96	#4 @ 10"	38.50	#4 @ 9"	38.85	#4 @ 9"	38.37	#4 @ 9"	37.89	#4 @ 9"	37.41	#4 @ 9"	36.93	#4 @ 8"	37.44	#4 @ 8"	37.06	#4 @ 8"	36.58	#4 @ 8"	36.10	#4 @ 7"	36.61	#4 @ 7"	36.23	#4 @ 7"	35.75	#4 @ 7"	35.27	#4 @ 6"	35.78	#4 @ 6"	35.40	#4 @ 6"	34.92	#4 @ 6"	34.44	#4 @ 5"	34.95	#4 @ 5"	34.57
11	3	#4 @ 10"	43.57	#4 @ 10"	42.27	#4 @ 10"	41.40	#4 @ 10"	40.79	#4 @ 10"	40.33	#4 @ 10"	39.87	#4 @ 10"	39.40	#4 @ 10"	38.94	#4 @ 10"	38.47	#4 @ 10"	38.00	#4 @ 9"	38.51	#4 @ 9"	38.13	#4 @ 9"	37.65	#4 @ 9"	37.17	#4 @ 8"	37.68	#4 @ 8"	37.30	#4 @ 8"	36.82	#4 @ 8"	36.34	#4 @ 8"	35.86	#4 @ 7"	36.37	#4 @ 7"	35.99	#4 @ 7"	35.51				
11	4	#4 @ 10"	45.48	#4 @ 10"	44.16	#4 @ 10"	43.28	#4 @ 10"	42.66	#4 @ 9"	43.09	#4 @ 9"	42.67	#4 @ 9"	42.27	#4 @ 9"	41.87	#4 @																															

SM-3 Construction Fence (CF)



CF-1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION OF CONSTRUCTION FENCE.
- CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.
- STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.
- CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

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Construction Fence (CF) SM-3

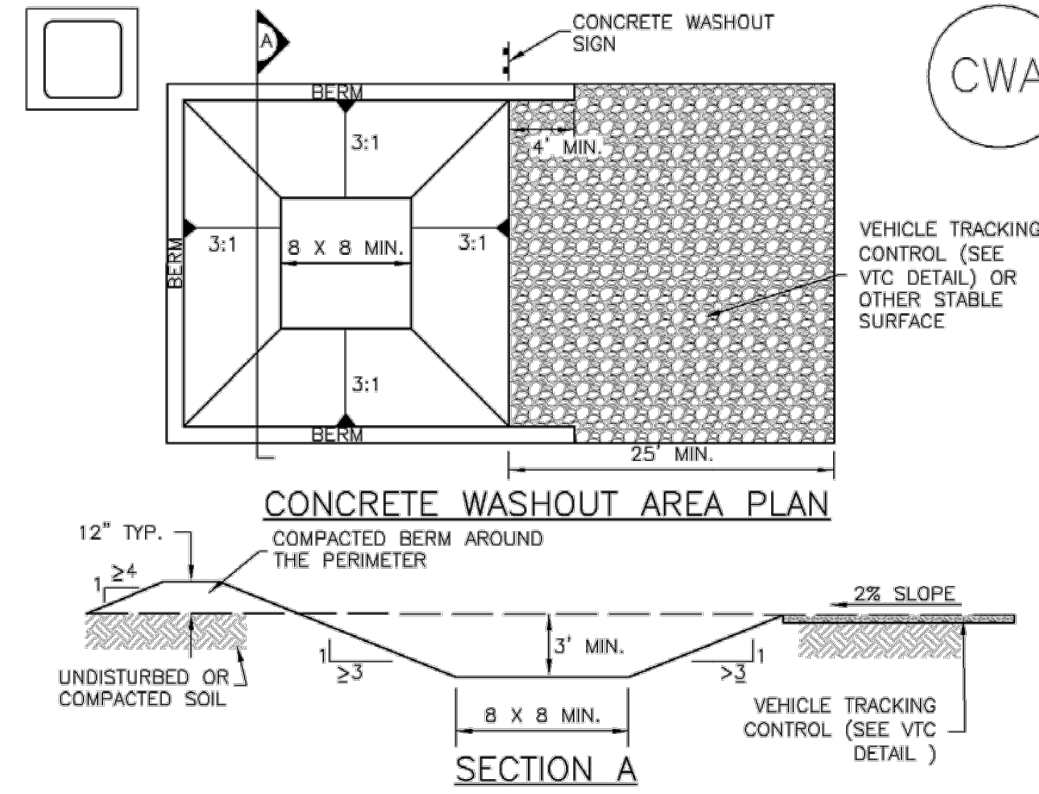
CONSTRUCTION FENCE MAINTENANCE NOTES

- 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.
- CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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.
(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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Concrete Washout Area (CWA) MM-1



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

- SEE PLAN VIEW FOR CWA INSTALLATION LOCATION.
- 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.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- 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 3' DEEP.
- CWA SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- 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 RIGS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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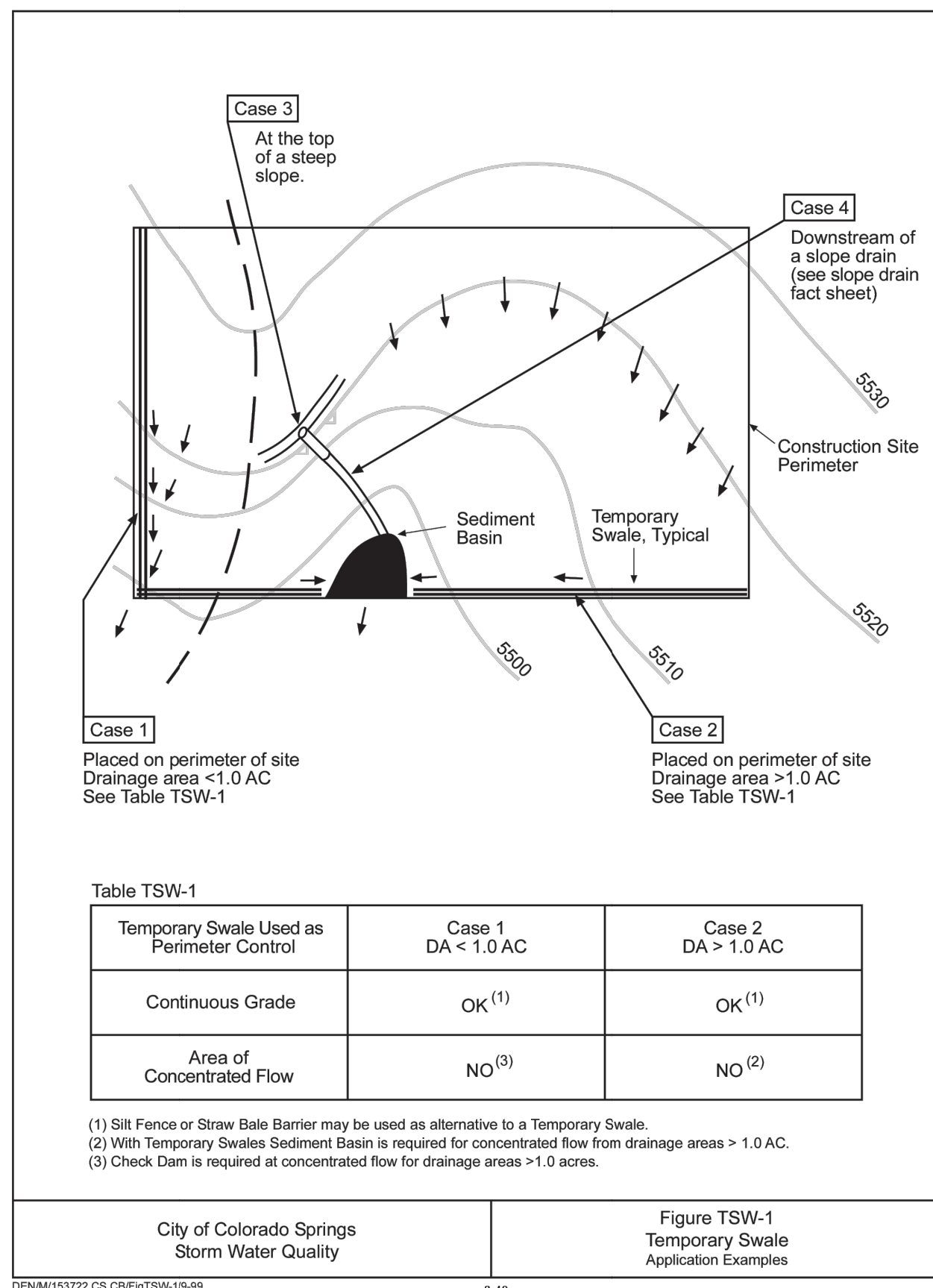
Concrete Washout Area (CWA) MM-1

CWA 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.
- 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'.
- 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.
- THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
- 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.

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.
(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

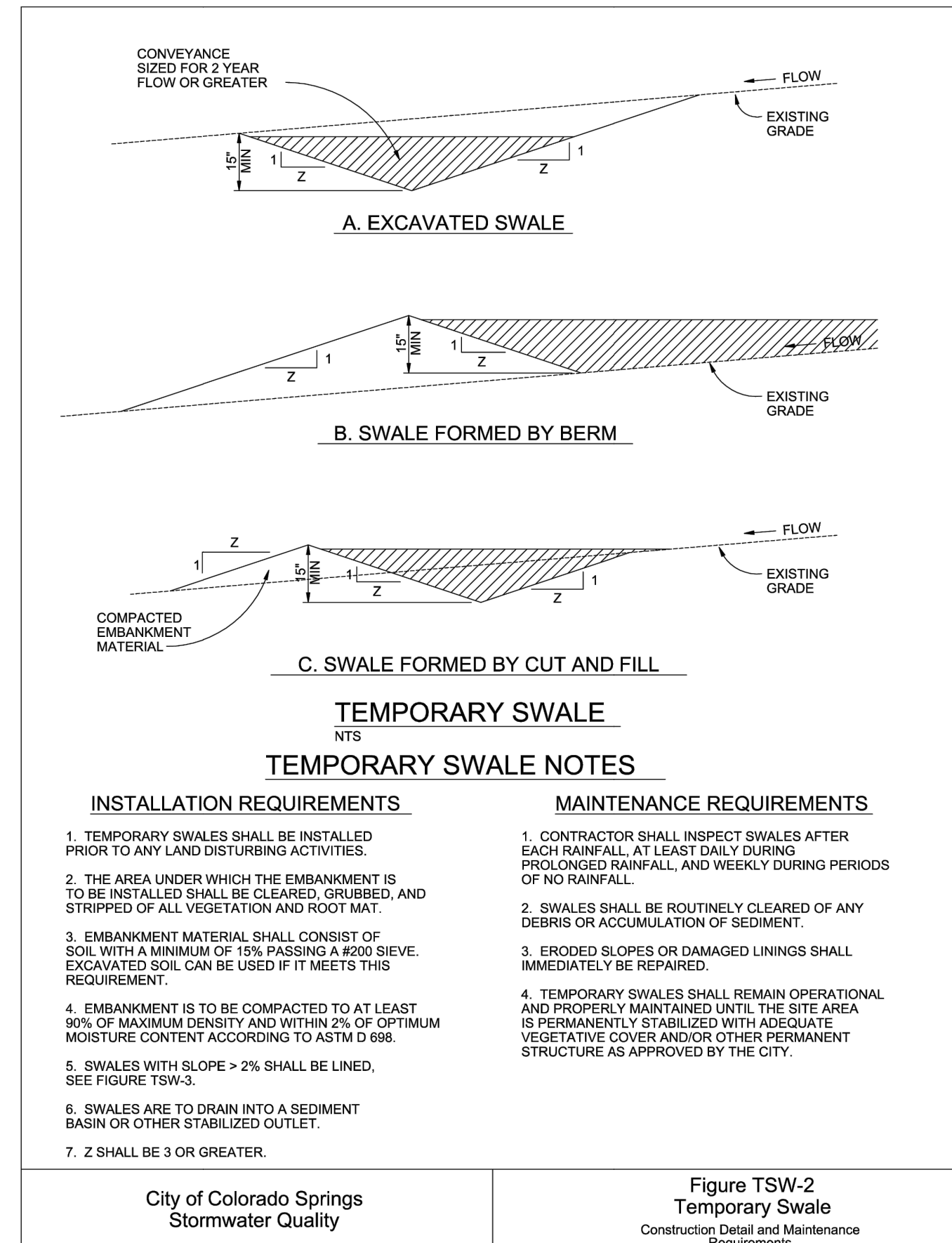
CWA-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010



Temporary Swale Used as	Case 1 DA < 1.0 AC	Case 2 DA > 1.0 AC
Continuous Grade	OK ⁽¹⁾	OK ⁽¹⁾
Area of Concentrated Flow	NO ⁽³⁾	NO ⁽²⁾

(1) Silt Fence or Straw Bale Barrier may be used as alternative to a Temporary Swale.
(2) With Temporary Swales Sediment Basin is required for concentrated flow from drainage areas > 1.0 AC.
(3) Check Dam is required at concentrated flow for drainage areas > 1.0 acres.

City of Colorado Springs Storm Water Quality Figure TSW-1 Temporary Swale Application Examples 3-49



TEMPORARY SWALE NOTES

- INSTALLATION REQUIREMENTS**
- TEMPORARY SWALES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
 - THE AREA UNDER WHICH THE EMBANKMENT IS TO BE INSTALLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATION AND ROOT MAT.
 - EMBANKMENT MATERIAL SHALL CONSIST OF SOIL WITH A MINIMUM OF 15% PASSING A #20 SIEVE. EXCAVATED SOIL CAN BE USED IF IT MEETS THIS REQUIREMENT.
 - EMBANKMENT IS TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D 698.
 - SWALES WITH SLOPE > 2% SHALL BE LINED. SEE FIGURE TSW-2.
 - SWALES ARE TO DRAIN INTO A SEDIMENT BASIN OR OTHER STABILIZED OUTLET.
 - Z SHALL BE 3 OR GREATER.
- MAINTENANCE REQUIREMENTS**
- CONTRACTOR SHALL INSPECT SWALES AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.
 - SWALES SHALL BE ROUTINELY CLEARED OF ANY DEBRIS OR ACCUMULATION OF SEDIMENT.
 - ERODED SLOPES OR DAMAGED LININGS SHALL IMMEDIATELY BE REPAIRED.
 - TEMPORARY SWALES SHALL REMAIN OPERATIONAL AND PROPERLY MAINTAINED UNTIL THE SITE AREA IS PERMANENTLY STABILIZED WITH ADEQUATE VEGETATIVE COVER AND/OR OTHER PERMANENT STRUCTURE AS APPROVED BY THE CITY.

City of Colorado Springs Stormwater Quality Figure TSW-2 Temporary Swale Construction Detail and Maintenance Requirements 3-50

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE. USES DESIGNATED BY WRITTEN AUTHORIZATION.

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BY	DATE	No.	REVISION

STERLING RECYCLING FACILITY
GEC DETAILS

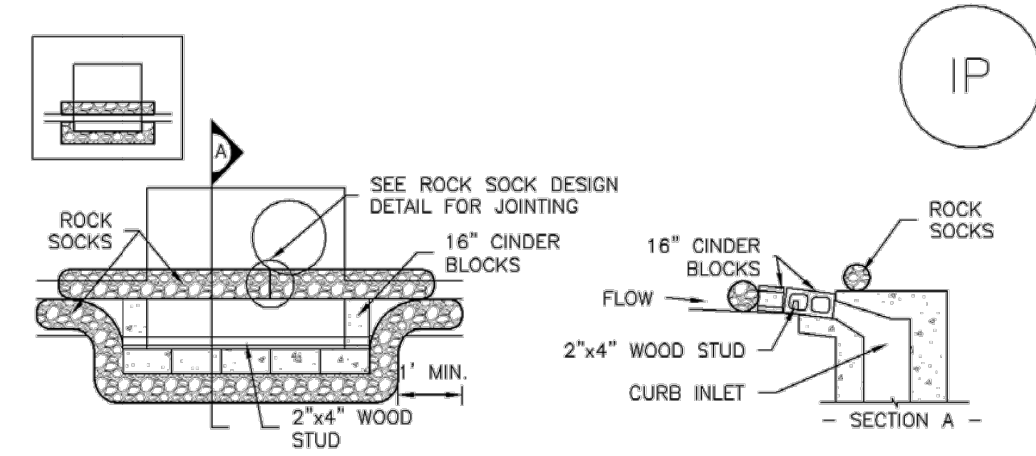


ENGINEER'S STATEMENT
STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

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JOB NO. 25188.14

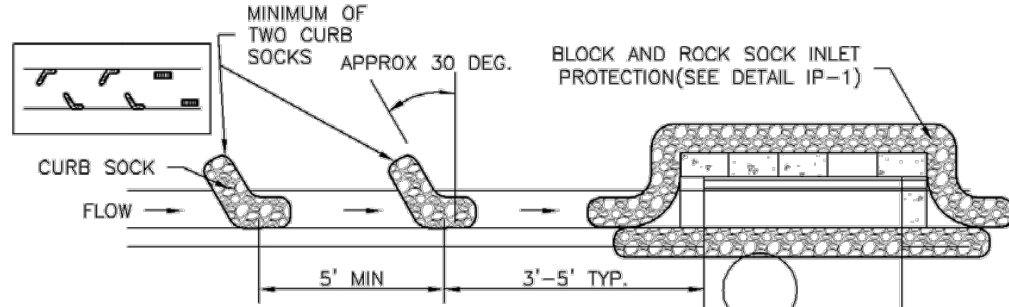
SC-6 Inlet Protection (IP)



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

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- 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.
- GRAVEL BAGS 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

- SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
- PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
- SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
- 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

SC-6 Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR:
-LOCATION OF INLET PROTECTION.
-TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
- INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS), IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
- 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.

INLET 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.
- SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES.
- INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
- WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

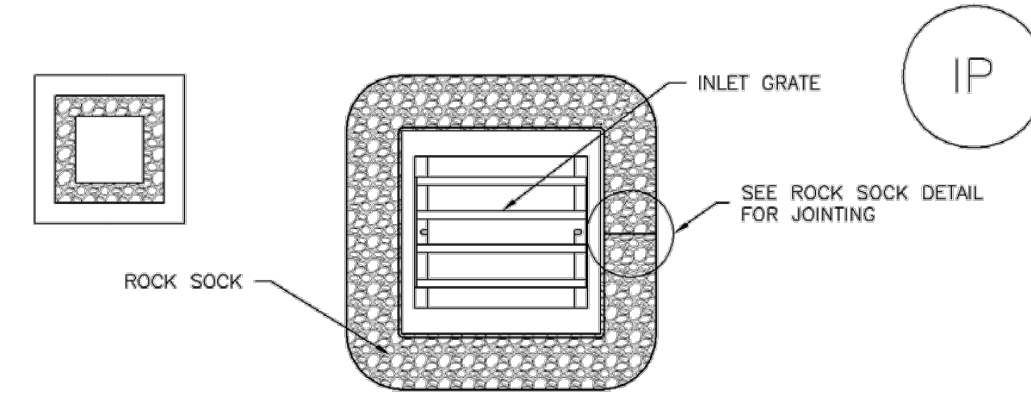
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; 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.

NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

IP-8 Urban Drainage and Flood Control District August 2013
Urban Storm Drainage Criteria Manual Volume 3

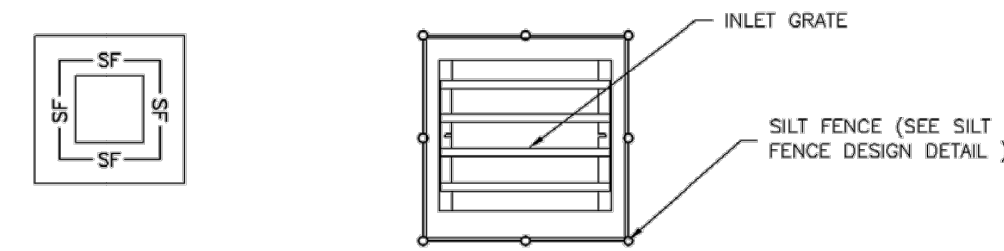
Inlet Protection (IP) SC-6



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- 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

- SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.
- 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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EC-4 Mulching (MU)

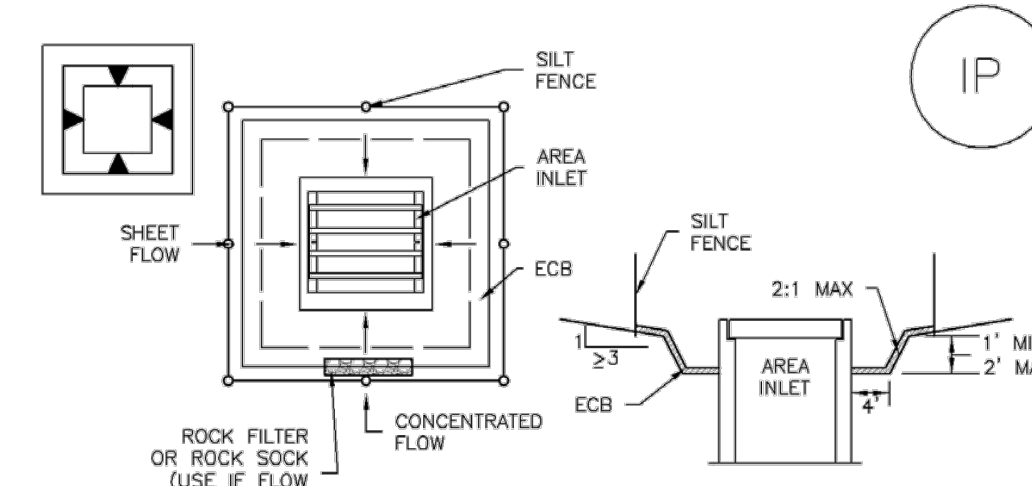
- Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping 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 hydromulching. 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.

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

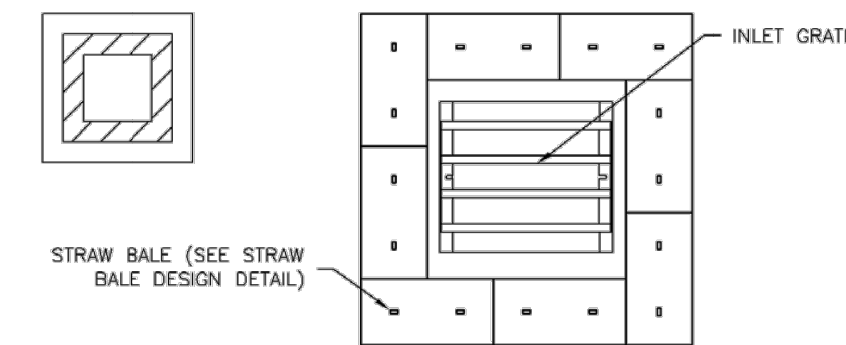
SC-6 Inlet Protection (IP)



IP-5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

- 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.
- WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.
- SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



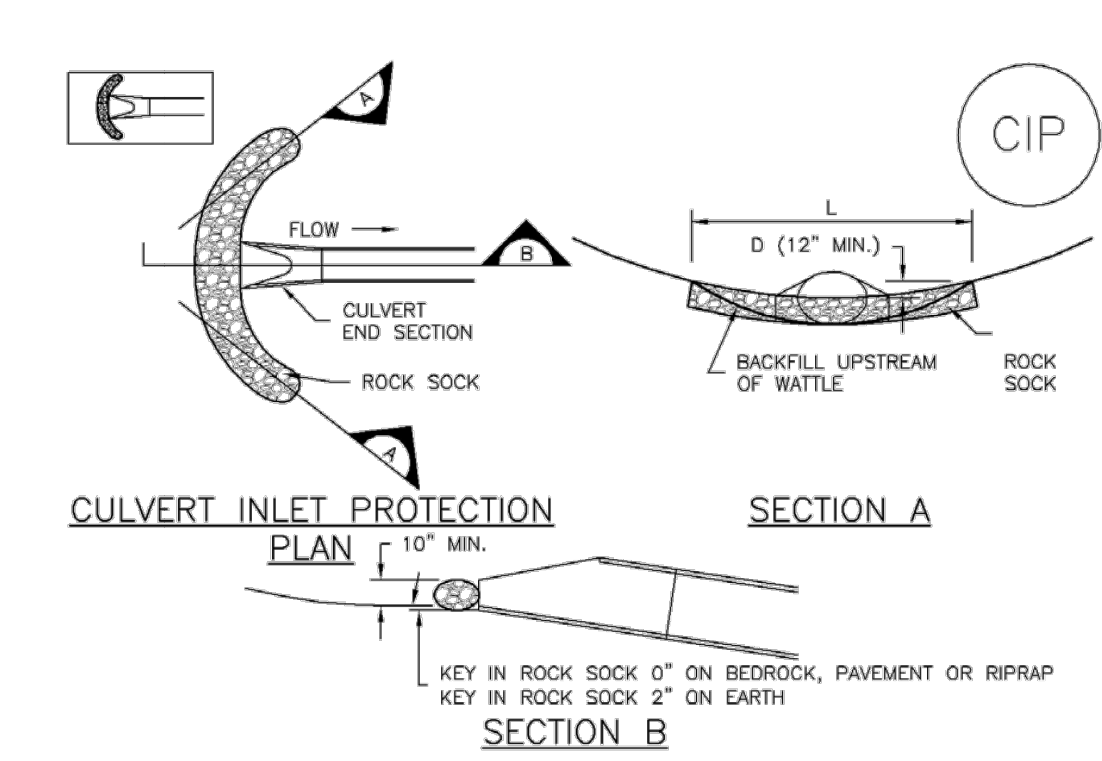
IP-6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

- SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- 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

- SEE PLAN VIEW FOR:
-LOCATION OF CULVERT INLET PROTECTION.
- SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINING DETAIL.

CULVERT INLET 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.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
- 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 UDFCD 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 August 2013
Urban Storm Drainage Criteria Manual Volume 3 IP-7

SC-6 Inlet Protection (IP)



ENGINEER'S STATEMENT
STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

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DATE

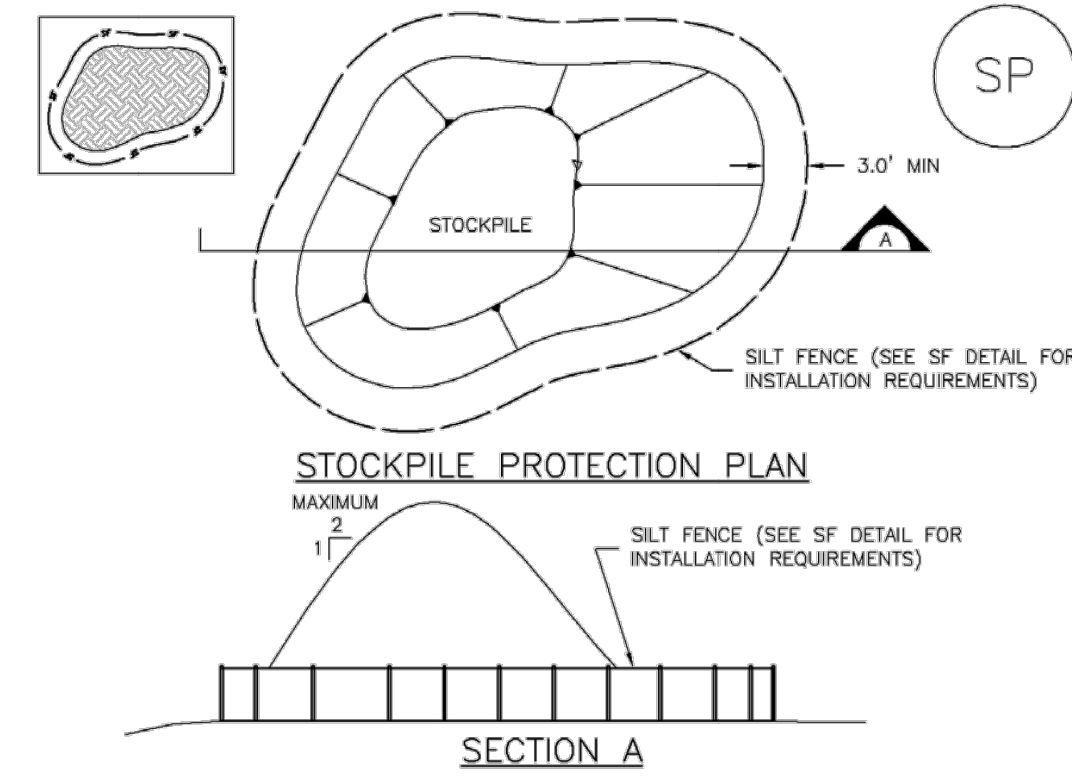
STERLING RECYCLING FACILITY GEC DETAILS	BY	DATE	No.	REVISION	H-SCALE	V-SCALE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	SHEET 17 OF 19	JOB NO. 25188.14
	N/A	N/A										

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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 IMPERVIOUS 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

Temporary Outlet Protection (TOP) EC-8

Description

Outlet protection helps to reduce erosion immediately downstream of a pipe, culvert, slope drain, rundown or other conveyance with concentrated, high velocity flows. Typical outlet protection consists of riprap or rock aprons at the conveyance outlet.

Appropriate Uses

Outlet protection should be used when a conveyance discharges onto a disturbed area where there is potential for accelerated erosion due to concentrated flow. Outlet protection should be provided where the velocity at the culvert outlet exceeds the maximum permissible velocity of the material in the receiving channel.

Note: This Fact Sheet and detail are for temporary outlet protection, outlets that are intended to be used for less than 2 years. For permanent, long-term outlet protection, see the *Major Drainage* chapter of Volume 1.

Design and Installation

Design outlet protection to handle runoff from the largest drainage area that may be contributing runoff during construction (the drainage area may change as a result of grading). Key in rock, around the entire perimeter of the apron, to a minimum depth of 6 inches for stability. Extend riprap to the height of the culvert or the normal flow depth of the downstream channel, whichever is less. Additional erosion control measures such as vegetative lining, turf reinforcement mat and/or other channel lining methods may be required downstream of the outlet protection if the channel is susceptible to erosion. See Design Detail OP-1 for additional information.

Maintenance and Removal

Inspect apron for damage and displaced rocks. If rocks are missing or significantly displaced, repair or replace as necessary. If rocks are continuously missing or displaced, consider increasing the size of the riprap or deeper keying of the perimeter.

Remove sediment accumulated at the outlet before the outlet protection becomes buried and ineffective. When sediment accumulation is noted, check that upgradient BMPs, including inlet protection, are in effective operating condition.

Outlet protection may be removed once the pipe is no longer draining an upstream area, or once the downstream area has been sufficiently stabilized. If the drainage pipe is permanent, outlet protection can be left in place; however, permanent outlet protection should be designed and constructed in accordance with the requirements of the *Major Drainage* chapter of Volume 2.



Photograph TOP-1. Riprap outlet protection.

Outlet Protection	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 TOP-1

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 INSTALLATION 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 PUNTER, 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.

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

Temporary Outlet Protection (TOP) EC-8

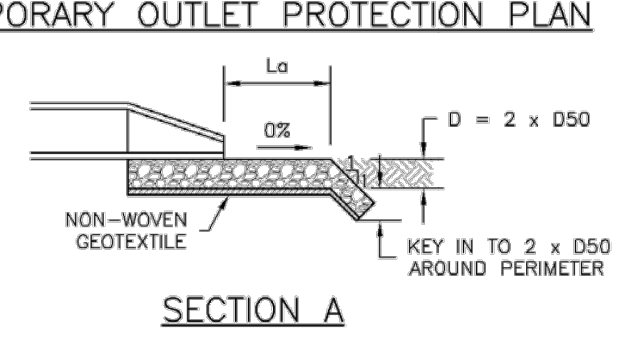
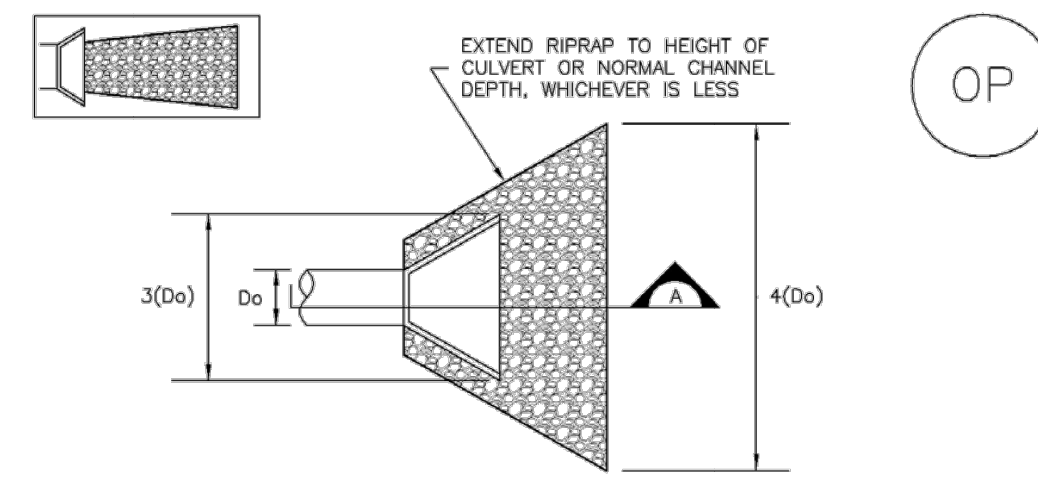
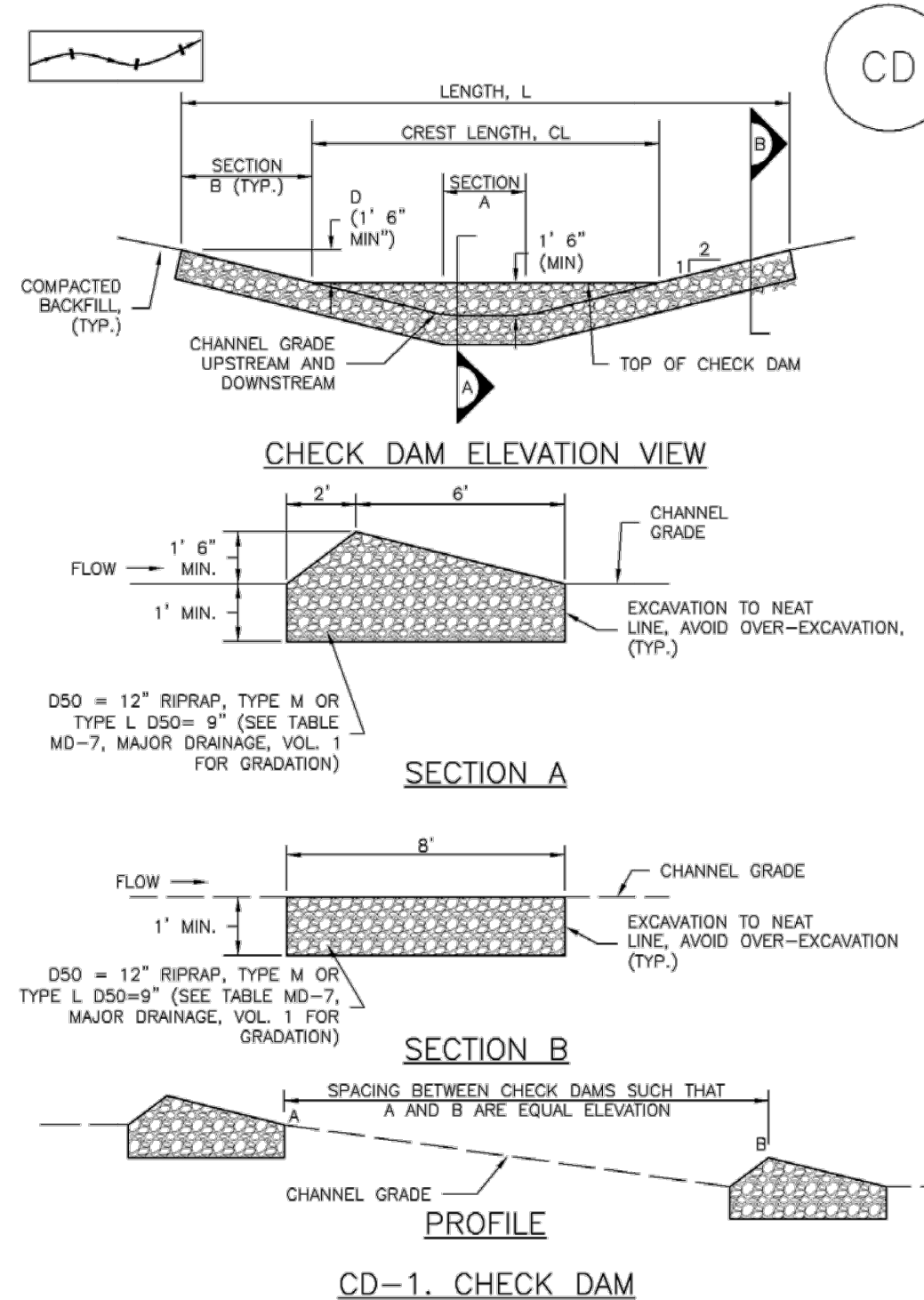


TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE

PIPE DIAMETER, D _o (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, L _a (FT)	RIPRAP D ₅₀ DIAMETER MIN (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	13	6
18	10	10	6
	20	16	9
	30	23	12
	40	26	16
24	30	16	9
	40	26	12
	50	26	12
	60	30	16

TOP-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Check Dams (CD) EC-12



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

Temporary Outlet Protection (TOP) EC-8

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF OUTLET PROTECTION.
 - DIMENSIONS OF OUTLET PROTECTION.
- DETAIL IS INTENDED FOR PIPES WITH SLOPE ≤ 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.
- TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND 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.

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 ALPURA, COLORADO AND PREVIOUS VERSION OF VOLUME 3, NOT AVAILABLE IN AUTOCAD)

GEC Checklist Item Z. Include details for the following BMPs. Examples of acceptable details for each are provided:

BMP	Detail # and Source		
	DCM (Vol 2: Chap 3.3)	MHFD (USDCM Vol 3: Chap 7)	COS - Stormwater Construction Manual (App E)
Rolled Erosion Control Products	ECB-1, ECB-2	EC-6	X
Seeding	TS-1	EC-2	X

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

Check Dams (CD) EC-12

CHECK DAM INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF CHECK DAMS.
 - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
 - LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
- CHECK DAMS INDICATED ON INITIAL SWMP SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND DISTURBING ACTIVITIES.
- RIPRAP UTILIZED FOR CHECK DAMS SHOULD BE OF APPROPRIATE SIZE FOR THE APPLICATION. TYPICAL TYPES OF RIPRAP USED FOR CHECK DAMS ARE TYPE M (D₅₀ 12") OR TYPE L (D₅₀ 9").
- RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1".
- THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1' 6" HIGHER THAN THE CENTER OF THE CHECK DAM.

CHECK DAM 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.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
- CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL. DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, 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.

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



ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

32314

MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
RHETORIC, LLC
20 BOULDER CRESCENT, STE 200
COLORADO SPRINGS, CO
ERIC HOWARD
EHOWARDPC@GMAIL.COM
(719) 964-0064

J.R. ENGINEERING
A Westman Company
Central 303-740-9888 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jrengineering.com

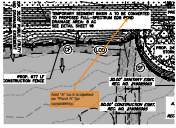
BY	DATE	REVISION
N/A	N/A	N/A
N/A	08/01/23	N/A
N/A	N/A	N/A
N/A	N/A	N/A

STERLING RECYCLING FACILITY
GEC DETAILS

SHEET 19 OF 19
JOB NO. 25188.14

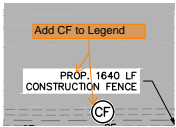
V1_Grading & Erosion Control Plan.pdf Markup Summary

Glenn Reese - EPC Stormwater (25)



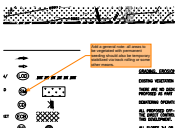
Subject: SW - Textbox with Arrow
Page Label: [4] 4 GEC01
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 4:42:37 PM
Status:
Color: ■
Layer:
Space:

Add "A" so it is labeled as "Pond A" for consistency.



Subject: SW - Textbox with Arrow
Page Label: [5] 5 GEC02
Author: Glenn Reese - EPC Stormwater
Date: 10/18/2023 10:25:55 AM
Status:
Color: ■
Layer:
Space:

Add CF to Legend



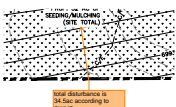
Subject: SW - Textbox with Arrow
Page Label: [5] 5 GEC02
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 4:35:47 PM
Status:
Color: ■
Layer:
Space:

Add a general note: all areas to be vegetated with permanent seeding should also be temporary stabilized via track rolling or some other means.



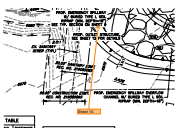
Subject: SW - Textbox with Arrow
Page Label: [5] 5 GEC02
Author: Glenn Reese - EPC Stormwater
Date: 10/18/2023 10:25:34 AM
Status:
Color: ■
Layer:
Space:

More TSW's are needed throughout the site to direct runoff to each TSB. Without more TSW's, flows in the western (and some eastern) portions of the site will not get conveyed to TSBs, but only treated by SF, which is not a sufficient BMP for such large areas. As-is just flows in the center and southeastern portions of the site are actually tributary to the TSB's.



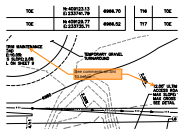
Subject: SW - Textbox with Arrow
Page Label: [5] 5 GEC02
Author: Glenn Reese - EPC Stormwater
Date: 10/18/2023 10:43:08 AM
Status:
Color: ■
Layer:
Space:

total disturbance is 34.5ac according to SWMP



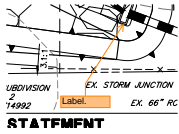
Subject: SW - Textbox with Arrow
Page Label: [8] 8 PG01
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:06:24 PM
Status:
Color: ■
Layer:
Space:

Sheet 10.



Subject: SW - Textbox with Arrow
Page Label: [8] 8 PG01
Author: Glenn Reese - EPC Stormwater
Date: 10/18/2023 8:18:08 AM
Status:
Color: ■
Layer:
Space:

See comments on Sht 10 below.



Subject: SW - Textbox with Arrow
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:04:17 PM
Status:
Color: ■
Layer:
Space:

Label.



Subject: SW - Textbox with Arrow
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:06:19 PM
Status:
Color: ■
Layer:
Space:

Sheet 10.

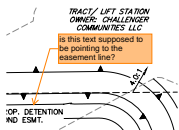


Subject: Polygon
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:09:11 PM
Status:
Color: ■
Layer:
Space:



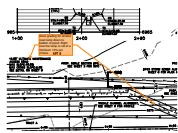
Subject: SW - Textbox with Arrow
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/18/2023 8:15:01 AM
Status:
Color: ■
Layer:
Space:

Is this the outfall channel discussed on PDF pg 12 of the FDR? It's not shown in the spillway detail on the next sheet. Please label and provide a detail.



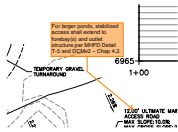
Subject: SW - Textbox with Arrow
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:30:00 PM
Status:
Color: ■
Layer:
Space:

is this text supposed to be pointing to the easement line?



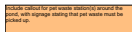
Subject: SW - Textbox with Arrow
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:14:28 PM
Status:
Color: ■
Layer:
Space:

show grading for access road ramp down to bottom of pond. Right now the ramp is not at a minimum 12% per criteria.



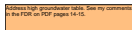
Subject: SW - Textbox with Arrow
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:15:38 PM
Status:
Color: ■
Layer:
Space:

For larger ponds, stabilized access shall extend to forebay(s) and outlet structure per MHFD Detail T-5 and DCMv2 – Chap 4.2.



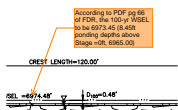
Subject: SW - Textbox
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 4:43:01 PM
Status:
Color: ■
Layer:
Space:

Include callout for pet waste station(s) around the pond, with signage stating that pet waste must be picked up.



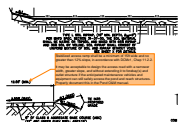
Subject: SW - Textbox
Page Label: [9] 9 PG02
Author: Glenn Reese - EPC Stormwater
Date: 10/18/2023 9:55:44 AM
Status:
Color: ■
Layer:
Space:

Address high groundwater table. See my comments in the FDR on PDF pages 14-15.



Subject: SW - Textbox with Arrow
Page Label: [10] 10 PG03
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 2:57:52 PM
Status:
Color: ■
Layer:
Space:

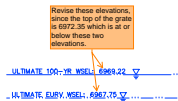
According to PDF pg 66 of FDR, the 100-yr WSEL to be 6973.45 (8.45ft ponding depths above Stage =0ft, 6965.00)



Subject: SW - Textbox with Arrow
Page Label: [10] 10 PG03
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:15:18 PM
Status:
Color: ■
Layer:
Space:

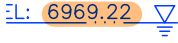
Stabilized access ramp shall be a minimum of 15ft wide and no greater than 12% slope, in accordance with DCMv1, Chap 11.2.2.

It may be acceptable to design the access road with a narrower width, greater slope, and without extending it to forebay(s) and outlet structure if the anticipated maintenance vehicles and equipment can still safely access the pond and reach structures. Properly document this in the Pond O&M manual.

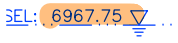


Subject: SW - Textbox with Arrow
Page Label: [12] 12 Outlet-DT
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 2:52:10 PM
Status:
Color: ■
Layer:
Space:

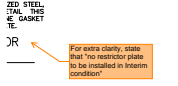
Revise these elevations, since the top of the grate is 6972.35 which is at or below these two elevations.



Subject: SW - Highlight
Page Label: [12] 12 Outlet-DT
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 2:51:56 PM
Status:
Color: ■
Layer:
Space:



Subject: SW - Highlight
Page Label: [12] 12 Outlet-DT
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 2:51:59 PM
Status:
Color: ■
Layer:
Space:



Subject: SW - Textbox with Arrow
Page Label: [12] 12 Outlet-DT
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 3:01:50 PM
Status:
Color: ■
Layer:
Space:

For extra clarity, state that "no restrictor plate to be installed in Interim condition"



Subject: SW - Textbox with Arrow
Page Label: [12] 12 Outlet-DT
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 4:49:59 PM
Status:
Color: ■
Layer:
Space:

Recommend capping the top of this opening to prevent debris from getting in between microscreen and orifice plate.

In other details on this sheet, this opening is shown to have concrete over top of it. But the opening for the screen is rarely constructed that way. So just asking you to consider that the opening will extend through the top of the box and therefore this opening will need to be capped.

Or make it extra clear on these details that the opening is not to extend through the top of the concrete box.

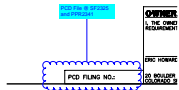


Subject: Image
Page Label: [19] 19 DT04
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 7:22:45 AM
Status:
Color: ■
Layer:
Space:

Subject: SW - Textbox
Page Label: [19] 19 DT04
Author: Glenn Reese - EPC Stormwater
Date: 10/17/2023 7:23:19 AM
Status:
Color: ■
Layer:
Space:

GEC Checklist Item Z. Include details for the following BMP's. Examples of acceptable details for each are provided:

eschoenheit (6)



Subject: Cloud+
Page Label: [1] 1 Cover
Author: eschoenheit
Date: 10/16/2023 2:10:56 PM
Status:
Color: ■
Layer:
Space:

PCD File @ SF2325 and PPR2341



Subject: Cloud+
Page Label: [1] 1 Cover
Author: eschoenheit
Date: 10/18/2023 1:14:50 PM
Status:
Color: ■
Layer:
Space:

Add date of the report

ALL BE AVAILABLE ON
IPMENT AND WIND.
BY ~~HAZARD LETTER~~ HA
DAYS PRIOR TO THE A

Subject: Line
Page Label: [1] 1 Cover
Author: eschoenheit
Date: 10/18/2023 1:14:52 PM
Status:
Color: ■
Layer:
Space:


ANCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPER-
AND SITES.
GEOLOGICAL HAZARD LETTER HAS BEEN PREPARED BY DIVISION E
IN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION
OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL NOTIFY
PROPERTY OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY
& POLLUTION PREVENTION DIVISION, COUNTY OF BREVARD, FLORIDA
AGENCY OF PUBLIC HEALTH AND ENVIRONMENT
CONTROL DIVISION
COUNTY ENGINE ROOM
DATE: 10/18/2023

Subject: Cloud+
Page Label: [1] 1 Cover
Author: eschoenheit
Date: 10/18/2023 1:15:16 PM
Status:
Color: ■
Layer:
Space:

Report

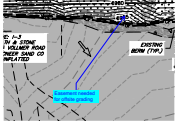
12.00' INTERIM MAINTENANCE
ACCESS ROAD
MAX. SLOPE: 10.0%
MAX. CROSS SLOPE: 2.0%
SEE DETAIL ON SHEET 9


Subject: Highlight
Page Label: [9] 9 PG02
Author: eschoenheit
Date: 10/16/2023 2:38:00 PM
Status:
Color: ■
Layer:
Space:

Subject: Highlight
Page Label: [10] 10 PG03
Author: eschoenheit
Date: 10/16/2023 2:35:39 PM
Status:
Color: 
Layer:
Space:

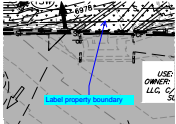
12.00" (MIN.)


CDurham (9)



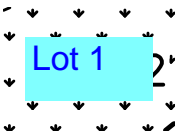
Subject: Callout
Page Label: [4] 4 GEC01
Author: CDurham
Date: 10/19/2023 5:06:34 PM
Status:
Color: 
Layer:
Space:


Easement needed for offsite grading



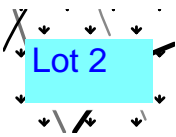
Subject: Callout
Page Label: [4] 4 GEC01
Author: CDurham
Date: 10/19/2023 5:07:01 PM
Status:
Color: 
Layer:
Space:


Label property boundary



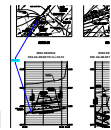
Subject: Text Box
Page Label: [4] 4 GEC01
Author: CDurham
Date: 10/19/2023 5:15:29 PM
Status:
Color: 
Layer:
Space:


Lot 1



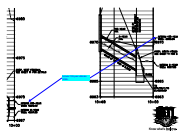
Subject: Text Box
Page Label: [4] 4 GEC01
Author: CDurham
Date: 10/19/2023 5:15:47 PM
Status:
Color: 
Layer:
Space:

Lot 2



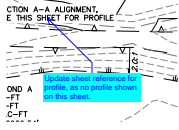
Subject: Callout
Page Label: [6] 6 DP01-DP03
Author: CDurham
Date: 10/19/2023 5:21:20 PM
Status:
Color: 
Layer:
Space:

Provide Riprap outlet protection



Subject: Callout
Page Label: [6] 6 DP01-DP03
Author: CDurham
Date: 10/19/2023 5:28:43 PM
Status:
Color: ■
Layer:
Space:

Include 100-year ultimate WSEL



Subject: Callout
Page Label: [8] 8 PG01
Author: CDurham
Date: 10/19/2023 5:36:25 PM
Status:
Color: ■
Layer:
Space:

Update sheet reference for profile, as no profile shown on this sheet.



Subject: Text Box
Page Label: [10] 10 PG03
Author: CDurham
Date: 10/19/2023 5:48:52 PM
Status:
Color: ■
Layer:
Space:

Include profile view of spillway



Subject: Text Box
Page Label: [14] 14 DT02
Author: CDurham
Date: 10/19/2023 5:50:36 PM
Status:
Color: ■
Layer:
Space:

Provide detail of how triple inlets will connect together