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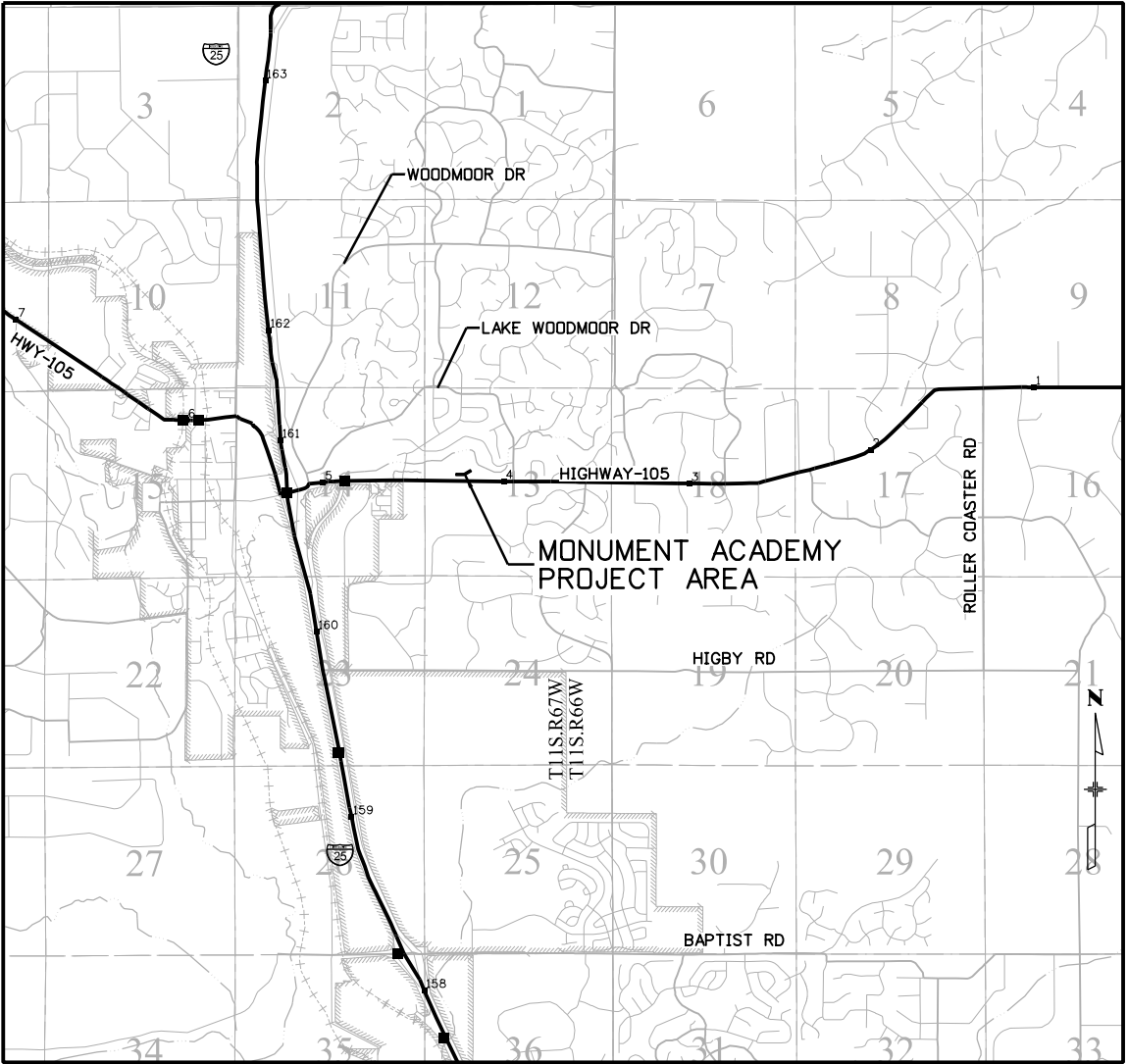
# MONUMENT ACADEMY RECIRCULATION PLANS

CONSTRUCTION BID PLANS OF PROPOSED  
MONUMENT ACADEMY RECIRCULATION PLAN  
FRONT AND BACK OF SCHOOL ACCESS  
MONUMENT, EL PASO COUNTY, COLORADO



REFERENCED STANDARDS
CODE ANALYSIS/DATA
ICC A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, 2017 EDITION
INTERNATIONAL BUILDING CODE - 2021 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE - 2021
INTERNATIONAL EXISTING BUILDING CODE - 2021 EDITION
NFPA 170 STANDARD FOR FIRE SAFETY AND EMERGENCY SYMBOLS - 2021 EDITION

ISSUE FOR BID PLANS  
APRIL 13, 2022



PROJECT LOCATION MAP



INDEX OF SHEETS	
SHEET	TITLE
1	TITLE SHEET
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37 to 40	DRAINAGE PLAN & PROFILES
41	RETAINING WALL GENERAL NOTES
42 to 44	RETAINING WALL PLAN & PROFILES
45	RETAINING WALL DETAILS
46 to 47	SUE LEGEND AND NOTES
48 to 49	SUE INVESTIGATION PLAN
50 to 51	UTILITY MODIFICATION PLAN
52 to 54	LIGHTING PLAN
55	SWMP COVER
56 to 63	SWMP NOTES
64 to 69	SWMP SITE MAPS
70 to 81	SWMP DETAILS
82 to 106	M & S STANDARD DETAILS
107 to 120	CROSS SECTIONS BACK OF SCHOOL
121 to 134	CROSS SECTIONS FRONT OF SCHOOL

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Sheet Revisions		
Date:	Comments	Init.



As Constructed

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Revised:

Void:

MONUMENT ACADEMY  
TITLE SHEET

Designer: C. BEASLEY  
Detailer: J. WILKERT  
Sheet Subset: GENERAL  
Structure Numbers: / /  
Subset Sheets: 1 of 8

Project No./Code

Sheet Number 1 of 81

GENERAL NOTES:

1. CONTRACTORS SHALL NOTIFY COLORADO ONE-CALL AT 800-922-1987 , 48 HOURS PRIOR TO ANY EXCAVATION. THE USA AUTHORIZATION NUMBERS SHALL BE KEPT AT THE JOB SITE.
2. NO WORK WHATSOEVER SHALL COMMENCE WITHOUT FIRST NOTIFYING EL PASO COUNTY AND MONUMENT ACADEMY.
3. CONTRACTOR SHALL COMPLY WITH THE INITIAL REQUIREMENTS OF THE APPROVED STORM WATER MANAGEMENT PLAN PRIOR TO ANY OTHER ONSITE CONSTRUCTION ACTIVITIES, AND SHALL MAINTAIN AND AMEND THE MEASURES EMPLOYED AS WORK PROGRESSES IN ACCORDANCE WITH THE APPROVED STORM WATER MANAGEMENT PLAN.
4. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, COUNTY, AND CITY LAWS AND ORDINANCES AND REGULATIONS OF THE DEPARTMENT OF INDUSTRIAL RELATIONS, OSHA, NPDES AND INDUSTRIAL ACCIDENT COMMISSION RELATED TO THE SAFETY AND CHARACTER OF THE WORK, EQUIPMENT AND LABOR PERSONNEL.
5. CONTRACTOR SHALL PERFORM ALL CONSTRUCTION IN SUCH A MANNER AS TO PROTECT ADJACENT EXISTING BUILDINGS, AND OTHER SITE ELEMENTS WHICH ARE TO REMAIN IN SERVICE.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITY AGENCIES.
7. CONTRACTOR SHALL PROTECT IN PLACE (BY ANY MEANS NECESSARY) ALL EXISTING UTILITIES TO REMAIN UNLESS OTHERWISE SPECIFIED HEREIN, CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE REPAIR AT HIS EXPENSE, FOR ANY DAMAGE TO EXISTING UTILITIES, STRUCTURES, OR OTHER SITE FEATURES, AS A RESULT OF HIS WORK.
8. CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES WHETHER KNOWN OR UNKNOWN PRIOR TO BEGINNING CONSTRUCTION.
9. ANY UNDERGROUND STRUCTURES SUCH AS CESSPOOLS, CISTERNS, MINING SHAFTS, TUNNELS, SEPTIC TANKS, WELLS, AND PIPELINES NOT LOCATED PRIOR TO CONSTRUCTION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR DETERMINATION OF APPROPRIATE ACTION SUCH AS REMOVAL OR TREATMENT IN A MANNER JUDGED SUITABLE TO THE OWNER.
10. CONTRACTOR SHALL MAINTAIN AND CLEAN, TO THE SATISFACTION OF THE OWNER, ALL ACCESS AND SERVICE ROADS USED DURING CONSTRUCTION.
11. CONTRACTOR SHALL COORDINATE WORK WHICH AFFECTS ADJACENT PROPERTY OWNERS. ANY QUESTIONS OR AGREEMENTS BETWEEN ADJACENT PROPERTY OWNERS AND CONTRACTOR SHALL BE MADE IN WRITING. A COPY OF SUCH AGREEMENT SHALL BE PROVIDED TO THE OWNER.
12. NO FIELD CHANGES WILL BE PERMITTED WITHOUT DIRECT WRITTEN AUTHORIZATION FROM THE ENGINEER.
13. CONTRACTOR SHALL MAINTAIN AT LEAST ONE ACCESS TO ALL AFFECTED WORK AREAS. CONTRACTOR WILL MAINTAIN INGRESS/EGRESS THROUGH THE EXISTING PROPERTY THROUGH THE EXISTING ACCESS ROADS.
14. THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION OF ALL SURVEY CONTROL MONUMENTS. IN THE EVENT MONUMENTS ARE DAMAGED OR DESTROYED BY THE CONTRACTOR, THE ENGINEER WILL REPLACE THE MONUMENT, AT THE CONTRACTOR'S EXPENSE.

GENERAL NOTES CONT'D:

17. CONTRACTOR SHALL COMPLY WITH STATE AND EL PASO COUNTY, STANDARDS AND SPECIFICATIONS, AS APPLICABLE, AND MAINTAIN COPIES OF THOSE DOCUMENTS ONSITE THROUGHOUT CONSTRUCTION ACTIVITIES.
18. CONTRACTOR SHALL CONSTRUCT BACK OF SCHOOL ACCESS ROAD PRIOR TO FRONT OF SCHOOL ACCESS ROAD FOLLOWING NTP. FRONT OF SCHOOL ACCESS ROAD SHALL NOT BE STARTED UNTIL THE EL PASO COUNTY HWY 105A FRONT OF SCHOOL WALL IS COMPLETED.

GRADING AND DRAINAGE GENERAL NOTES:

1. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE STORM WATER MANAGEMENT PLAN (SWMP), EL PASO COUNTY REGULATIONS AND STATE REGULATIONS.
2. ANY LAND CLEARING, CONSTRUCTION, OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN. A CERTIFIED CONTRACTOR SHALL BE ON SITE ON ALL DAYS WHEN CONSTRUCTION OR GRADING ACTIVITY TAKES PLACE.
3. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING RUNOFF FROM THE PROPERTY TO PREVENT DAMAGE OF ONSITE IMPROVEMENTS AND ADJACENT PROPERTY DURING THE PERFORMANCE PERIOD OF THE CONSTRUCTION CONTRACT.
4. CONTRACTOR SHALL CONFINE THE CONSTRUCTION ACTIVITIES TO THE LIMITS SHOWN ON THESE DRAWINGS, AND SHALL NOT ENCROACH ON ANY PROPERTIES OUTSIDE OF THE MONUMENT ACADEMY BOUNDARY UNLESS SPECIFICALLY SHOWN ON THESE DRAWINGS.
5. FOR THE FRONT OF SCHOOL ACCESS ROAD THE EARTHWORK CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH ANY ON-GOING OR PROPOSED CONSTRUCTION OF HIGHWAY 105 PROJECT A. THIS WORK SHALL NOT BEGIN UNTIL THE HIGHWAY 105A WALL IN FRONT OF THE SCHOOL HAS BEEN COMPLETED.
6. PROPOSED CONTOURS AND SPOT ELEVATIONS SHOWN ARE TO FINISHED GRADE. GRADES SHALL BE ADJUSTED LOWER FOR THE ADDITION OF VARIOUS SURFACINGS ACCORDING TO THE FOLLOWING:
  - a. DISTURBED AREAS TO RECEIVE TOPSOIL – 6 INCHES



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File Name: School General-02 GeneralNotes.dgn		Date:	Comments	Init.	No Revisions:				
Horiz. Scale: 1:1      Vert. Scale: None					Revised:	Designer: C. BEASLEY	Structure Numbers		
					Void:	Detailer: J. WILKERT			
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800						Sheet Subset: GENERAL	Subset Sheets: 2 of 8		Sheet Number 2 of 81

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PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER
<input type="checkbox"/> M-100-1	STANDARD SYMBOLS (3 SHEETS).....	1-3
<input type="checkbox"/> M-100-2	ACRONYMS AND ABBREVIATIONS (4 SHEETS).....	4-7
<input type="checkbox"/> M-203-1	APPROACH ROADS.....	8
<input type="checkbox"/> M-203-2	DITCH TYPES .....	9
<input type="checkbox"/> M-203-11	SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)	10-12
<input type="checkbox"/> M-203-12	SUPERELEVATION STREETS (2 SHEETS).....	13-14
<input checked="" type="checkbox"/> M-206-1	EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	15-16
<input type="checkbox"/> M-206-2	EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)....	17-18
<input checked="" type="checkbox"/> M-208-1	TEMPORARY EROSION CONTROL (11 SHEETS) .....	19-29
<input type="checkbox"/> M-210-1	MAILBOX SUPPORTS (2 SHEETS) .....	30-31
<input checked="" type="checkbox"/> M-214-1	NURSERY STOCK DETAILS .....	32
<input checked="" type="checkbox"/> M-216-1	SOIL RETENTION COVERING (2 SHEETS) .....	33-34
<input type="checkbox"/> M-412-1	CONCRETE PAVEMENT JOINTS (9 SHEETS) .....	<del>35-39</del>
<input type="checkbox"/> M-412-2	CONCRETE PAVEMENT CRACK REPAIR (4 SHEETS) <i>(NEW, ISSUED ON OCTOBER 7, 2019)</i>	
<input type="checkbox"/> M-510-1	STRUCTURAL PLATE PIPE H-20 LOADING.....	40
<input type="checkbox"/> M-601-1	SINGLE CONCRETE BOX CULVERT (CAST-IN-PLACE).....	41-42
<input type="checkbox"/> M-601-2	DOUBLE CONCRETE BOX CULVERT (CAST-IN-PLACE).....	43-44
<input type="checkbox"/> M-601-3	TRIPLE CONCRETE BOX CULVERT (CAST-IN-PLACE).....	45-46
<input checked="" type="checkbox"/> M-601-10	HEADWALL FOR PIPES.....	47
<input type="checkbox"/> M-601-11	TYPE "S" SADDLE HEADWALLS FOR PIPE.....	48
<input type="checkbox"/> M-601-12	HEADWALLS AND PIPE OUTLET PAVING.....	49
<input type="checkbox"/> M-601-20	WINGWALLS FOR PIPE OR BOX CULVERTS (2 SHEETS) ...	50-51
<input type="checkbox"/> M-603-1	METAL PIPE (4 SHEETS).....	52-55
<input checked="" type="checkbox"/> M-603-2	REINFORCED CONCRETE PIPE .....	56
<input type="checkbox"/> M-603-3	PRECAST CONCRETE BOX CULVERT.....	57
<input type="checkbox"/> M-603-4	CORRUGATED POLYETHYLENE PIPE (AASHTO M294) AND POLYPROPYLENE PIPE (AASHTO M330)	58
<input type="checkbox"/> M-603-5	POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304).....	59
<input type="checkbox"/> M-603-6	STEEL REINFORCED POLYETHYLENE RIBBED PIPE (AASHTO MP 20)	60
<input checked="" type="checkbox"/> M-603-10	CONCRETE AND METAL END SECTIONS .....	61
<input type="checkbox"/> M-603-12	TRAVERSABLE END SECTIONS AND SAFETY GRATES.....	62-64
<input type="checkbox"/> M-604-10	INLET, TYPE C .....	65
<input type="checkbox"/> M-604-11	INLET, TYPE D .....	66
<input checked="" type="checkbox"/> M-604-12	CURB INLET TYPE R (2 SHEETS).....	67-68
<input type="checkbox"/> M-604-13	CONCRETE INLET TYPE 13.....	69
<input checked="" type="checkbox"/> M-604-20	MANHOLES (3 SHEETS).....	70-72
<input type="checkbox"/> M-604-25	VANE GRATE INLET (5 SHEETS).....	73-77
<input checked="" type="checkbox"/> M-605-1	SUBSURFACE DRAINS .....	78

PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER
<input type="checkbox"/> M-606-1	MIDWEST GUARDRAIL SYSTEM TYPE 3 W-BEAM 31 INCHES (19 SHEETS) <i>(REVISED ON MARCH 5, 2020)</i>	79-97
<input type="checkbox"/> M-606-13	GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS).....	98-101
<input type="checkbox"/> M-606-14	PRECAST TYPE 7 CONCRETE BARRIER (4 SHEETS).....	<del>102-104</del>
<input type="checkbox"/> M-606-15	GUARDRAIL TYPE 9 SINGLE SLOPE BARRIER (11 SHEETS) <i>(REVISED ON MARCH 5, 2020)</i>	105-115
<input type="checkbox"/> M-607-1	WIRE FENCES AND GATES (3 SHEETS).....	116-118
<input type="checkbox"/> M-607-2	CHAIN LINK FENCE (3 SHEETS).....	119-121
<input type="checkbox"/> M-607-3	BARRIER FENCE.....	122
<input type="checkbox"/> M-607-4	DEER FENCE, GATES, AND GAME RAMPS (7 SHEETS).....	<del>123-127</del>
<input type="checkbox"/> M-607-10	PICKET SNOW FENCE .....	128
<input type="checkbox"/> M-607-15	ROAD CLOSURE GATE (9 SHEETS).....	129-137
<input type="checkbox"/> M-608-1	CURB RAMPS (10 SHEETS).....	138-147
<input type="checkbox"/> M-609-1	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS).....	148-151
<input type="checkbox"/> M-611-1	CATTLE GUARD (2 SHEETS).....	152-153
<input type="checkbox"/> M-611-2	DEER GUARD (2 SHEETS).....	154-155
<input type="checkbox"/> M-614-1	RUMBLE STRIPS (3 SHEETS).....	156-158
<input type="checkbox"/> M-614-2	SAND BARREL ARRAYS (2 SHEETS).....	159-160
<input type="checkbox"/> M-615-1	EMBANKMENT PROTECTOR TYPE 3 .....	161
<input type="checkbox"/> M-615-2	EMBANKMENT PROTECTOR TYPE 5 .....	162
<input type="checkbox"/> M-616-1	INVERTED SIPHON.....	163
<input type="checkbox"/> M-620-1	FIELD LABORATORY CLASS 1.....	164
<input type="checkbox"/> M-620-2	FIELD LABORATORY CLASS 2 (2 SHEETS) .....	165-166
<input type="checkbox"/> M-620-11	FIELD OFFICE CLASS 1.....	167
<input type="checkbox"/> M-620-12	FIELD OFFICE CLASS 2.....	168
<input type="checkbox"/> M-629-1	SURVEY MONUMENTS (2 SHEETS).....	169-170

COLORADO  
DEPARTMENT OF TRANSPORTATION  
M&S STANDARDS PLANS LIST  
July 31, 2019

Revised on January 31, 2022

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.


THE M&S STANDARD PLANS USED TO DESIGN THIS PROJECT ARE INDICATED BY A MARKED BOX ☒, AND WILL BE ATTACHED TO THE PLANS. ALL THE OTHER M&S STANDARD PLANS ARE STILL ELIGIBLE FOR CONSTRUCTION IF APPROVED BY AN APPROPRIATE CDOT ENGINEER.

PLAN NUMBER	S STANDARD TITLE	PAGE NUMBER
<input type="checkbox"/> S-612-1	DELINEATOR INSTALLATIONS (8 SHEETS) .....	171-178
<input type="checkbox"/> S-613-1	ROADWAY LIGHTING (6 SHEETS) .....	<del>179-186</del>
<input type="checkbox"/> S-613-2	ALTERNATIVE ROADWAY LIGHTING (4 SHEETS) <i>(NEW, ISSUED ON SEPTEMBER 30, 2020)</i>	
<input type="checkbox"/> S-614-1	GROUND SIGN PLACEMENT (2 SHEETS).....	187-188
<input type="checkbox"/> S-614-2	CLASS I SIGNS .....	189
<input type="checkbox"/> S-614-3	CLASS II SIGNS .....	190
<input type="checkbox"/> S-614-4	CLASS III SIGNS (3 SHEETS) .....	191-193
<input type="checkbox"/> S-614-5	BREAK-AWAY SIGN SUPPORT DETAILS FOR CLASS III SIGNS (2 SHEETS)	194-195
<input type="checkbox"/> S-614-6	CONCRETE FOOTINGS AND SIGN ISLANDS.....	196-197
<input type="checkbox"/> S-614-8	TUBULAR STEEL SIGN SUPPORT DETAILS (7 SHEETS).....	198-204
<del>S-614-9</del>	<del>PEDESTRIAN PUSH BUTTON POST ASSEMBLY (2 SHEETS)</del> <i>(SUPERSEDED ON JANUARY 23, 2020 BY S-614-45)</i>	<del>205-206</del>
<input type="checkbox"/> S-614-10	MARKER ASSEMBLY INSTALLATIONS .....	207
<input type="checkbox"/> S-614-11	MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS .....	208
<input type="checkbox"/> S-614-12	STRUCTURE NUMBER INSTALLATION (2 SHEETS).....	209-210
<input type="checkbox"/> S-614-14	FLASHING BEACON AND SIGN INSTALLATIONS (4 SHEETS).	211-214
<input type="checkbox"/> S-614-20	TYPICAL POLE MOUNT SIGN INSTALLATIONS.....	215
<input type="checkbox"/> S-614-21	CONCRETE BARRIER SIGN POST INSTALLATIONS.....	216-217
<input type="checkbox"/> S-614-22	TYPICAL MULTI-SIGN INSTALLATIONS.....	218
<input type="checkbox"/> S-614-40	TYPICAL TRAFFIC SIGNAL 30'-75' DOUBLE MAST ARMS. 65'-75' SINGLE MAST ARMS (5 SHEETS)	219-223
<input type="checkbox"/> S-614-40A	ALTERNATIVE TRAFFIC SIGNAL 25'-55' SINGLE MAST ARMS (4 SHEETS)	224-227
<input type="checkbox"/> S-614-41	TEMPORARY SPAN WIRE SIGNALS (13 SHEETS).....	228-240
<input type="checkbox"/> S-614-42	CABINET FOUNDATION DETAIL (4 SHEETS).....	241-244
<input type="checkbox"/> S-614-43	TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS.....	245-252
<input type="checkbox"/> S-614-44	PEDESTAL POLE SIGNALS (2 SHEETS).....	253-254
<input type="checkbox"/> S-614-45	PEDESTRIAN PUSH BUTTON POST ASSEMBLY DETAILS (6 SHEETS) <i>(REVISED ON DECEMBER 3, 2020)</i>	
<input type="checkbox"/> S-614-50	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS).....	255-266
<input type="checkbox"/> S-614-60	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS).....	267-280
<input type="checkbox"/> S-627-1	PAVEMENT MARKINGS (9 SHEETS).....	281-289
<input type="checkbox"/> S-630-1	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION.....	290-313
<input type="checkbox"/> S-630-2	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP).....	314
<input type="checkbox"/> S-630-3	FLASHING BEACON (PORTABLE) DETAILS .....	315
<input type="checkbox"/> S-630-4	STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION.....	316-317
<input type="checkbox"/> S-630-5	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS) .....	318-319
<input type="checkbox"/> S-630-6	EMERGENCY PULL-OFF AREA (TEMPORARY).....	320
<input type="checkbox"/> S-630-7	ROLLING ROADBLOCKS FOR TRAFFIC CONTROL .....	321-323

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Sheet Revisions		
Date:	Comments	Init.



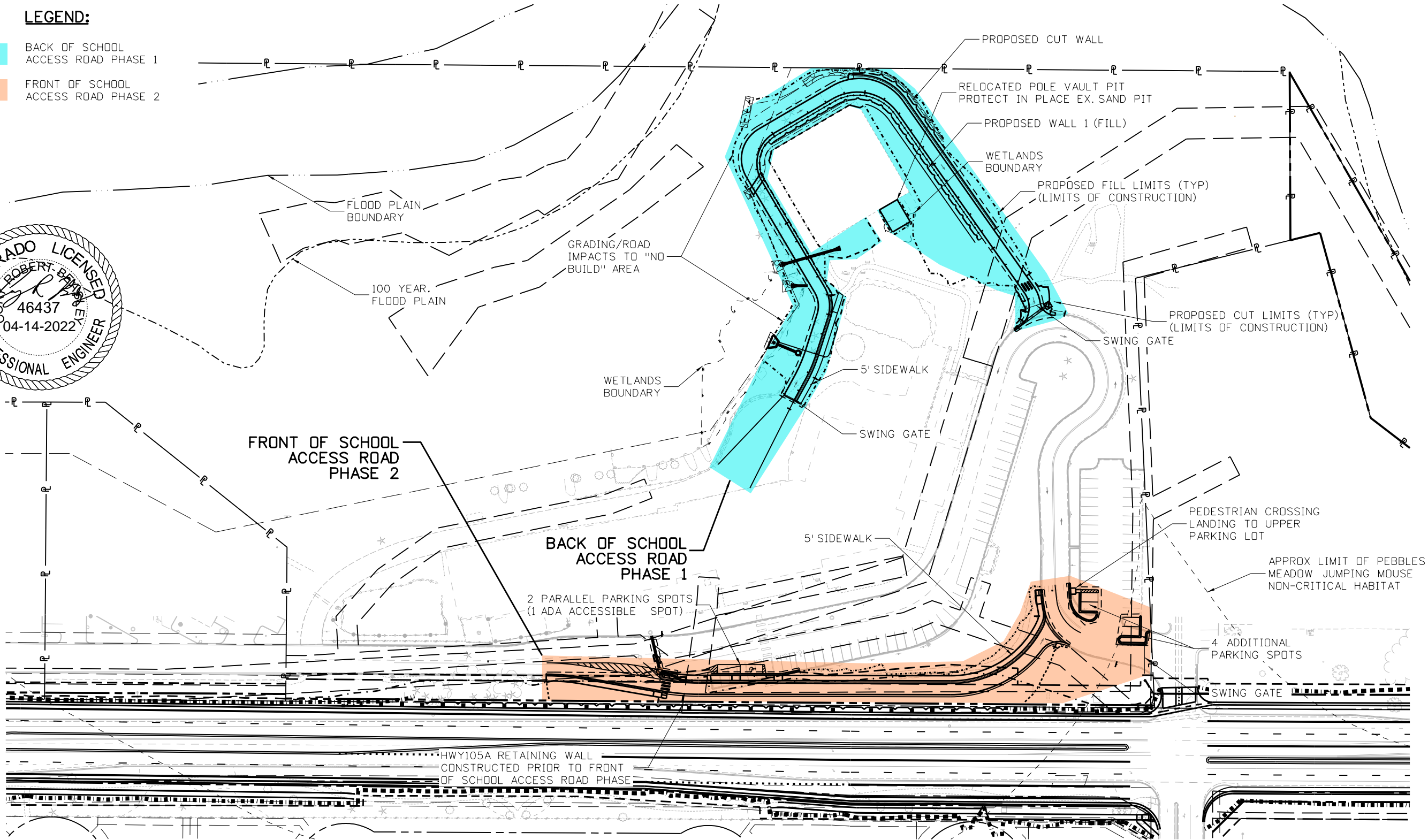
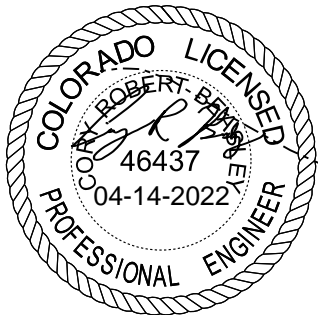
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No Revisions:				
Revised:		Designer: J. WILKERT	Structure Numbers	
Void:		Detailer: J. WILKERT		
		Sheet Subset: GENERAL	Subset Sheets: 3 of 8	Sheet Number 3 of 81



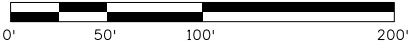
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LEGEND:

- BACK OF SCHOOL  
ACCESS ROAD PHASE 1
- FRONT OF SCHOOL  
ACCESS ROAD PHASE 2



OVERALL MASTER PLANVIEW



Print Date: 4/13/2022  
File Name: School General-04 Overall Sheet.dgn  
Horiz. Scale: 1:100 Vert. Scale: None

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Sheet Revisions		
Date:	Comments	Init.



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No Revisions:
Revised:
Void:

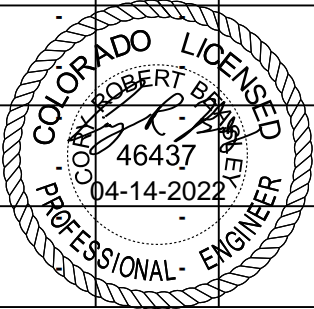
MONUMENT ACADEMY OVERALL MASTER PLAN			
Designer:	J. WILKERT	Structure	Numbers
Detailer:	J. WILKERT	Sheet Subset:	GENERAL
Subset Sheets:	4 of 8	Sheet Number	4 of 81

Project No./Code



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ITEM NO.	CONTRACT ITEM	UNITS	REMOVAL		ROADWAY		UTILITIES		DRAINAGE		EROSION		TRAFFIC		WALLS		PROJECT TOTALS	
			BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT
001	MOBILIZATION	LS	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1
002	CLEARING AND GRUBBING	ACRE	0.43	0.28	-	-	-	-	-	-	-	-	-	-	-	-	0.43	0.28
003	REMOVAL OF SAND/SMALL STONE	ACRE	0.20	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.20	0.01
004	REMOVAL OF ASPHALT (INCLUDES SAWCUT)	SY	17	227	-	-	-	-	-	-	-	-	-	-	-	-	17	227
005	REMOVAL OF CURB AND GUTTER	LF	43.00	411.00	-	-	-	-	-	-	-	-	-	-	-	-	43	411
006	REMOVAL OF SIDEWALK	SY	64	286	-	-	-	-	-	-	-	-	-	-	-	-	64	286
007	REMOVAL OF CONCRETE PAD (POLEVAULT)	SY	54	-	-	-	-	-	-	-	-	-	-	-	-	-	54	-
008	REMOVAL OF MODULAR BLOCK WALL	LF	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	30
009	REMOVAL OF CONCRETE PAD (BENCH)	SY	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
010	REMOVAL OF END SECTION	EA	2	-	-	-	-	-	2	-	-	-	-	-	-	-	4	-
011	REMOVE & RESET STONE	SY	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	15
012	REMOVAL OF FENCE	LF	53	-	-	-	-	-	-	-	-	-	-	-	-	-	53	-
013	REMOVE AND RESET BENCH	EA	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
014	RELOCATE TREE	EA	16	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-
015	REMOVAL OF TRAFFIC STRIPING	LF	-	-	-	-	-	-	-	-	-	-	-	96	-	-	-	96
016	REMOVE AND RELOCATE SIGN	EA	7	2	-	-	-	-	-	-	-	-	-	-	-	-	7	2
017	REMOVE SIGN	EA	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
018	EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CY	-	-	1,871	-	-	-	-	-	-	-	-	-	-	-	1,871	-
019	AGGREGATE BASE COURSE (CLASS 6)	CY	-	-	234	192	-	-	-	-	-	-	-	-	-	-	234	192
020	HOT MIX ASPHALT (GRADING SX 4" (PG 58-28)	TON	-	-	194	134	-	-	-	-	-	-	-	-	-	-	194	134
021	HMA PATCHING	TON	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	19
022	CURB AND GUTTER - TYPE B	LF	-	-	-	407	-	-	-	-	-	-	-	-	-	-	-	407
023	CURB AND GUTTER - TYPE C	LF	-	-	-	426	-	-	-	-	-	-	-	-	-	-	-	426
024	CURB AND GUTTER - TYPE C SPECIAL	LF	-	-	110	-	-	-	-	-	-	-	-	-	-	-	110	-
025	CURB AND GUTTER - TYPE C (W/ 2' GUTTER)	LF	-	-	216	-	-	-	-	-	-	-	-	-	-	-	216	-
026	2' CONCRETE WALL DRAINAGE GUTTER	LF	-	-	-	-	-	-	-	-	-	-	-	-	116	-	116	-
027	2' CONCRETE VALLEY PAN	LF	-	-	32	36	-	-	-	-	-	-	-	-	-	-	32	36
028	6' CONCRETE VALLEY PAN	LF	-	-	20	-	-	-	-	-	-	-	-	-	-	-	20	-
029	6" CONCRETE SIDEWALK	SY	-	-	63	250	-	-	-	-	-	-	-	-	-	-	63	250
030	6" CONCRETE CURB RAMP	SY	-	-	-	52	-	-	-	-	-	-	-	-	-	-	-	52



Print Date: 4/13/2022

File Name: SchoolGeneral-05\_SDAQ-01.dgn

Horiz. Scale: 1:1      Vert. Scale: None

5555 TECH CENTER DRIVE, SUITE 310  
COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800

Sheet Revisions		
Date:	Comments	Init.



As Constructed

No Revisions:

Revised:

Void:

MONUMENT ACADEMY  
SUMMARY OF APPROXIMATE  
QUANTITIES (SDAQ-01)

Designer: C. BEASLEY

Detailer: J. WIKERT

Sheet Subset: GENERAL

Structure Numbers

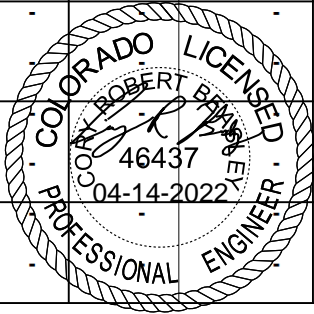
Subset Sheets: 5 of 8

Project No./Code

Sheet Number 5 of 81

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ITEM NO.	CONTRACT ITEM	UNITS	REMOVAL		ROADWAY		UTILITIES		DRAINAGE		EROSION		TRAFFIC		WALLS		PROJECT TOTALS	
			BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT
031	4' CHAINLINK FENCE	LF	-	-	467	-	-	-	-	-	-	-	-	-	-	-	467	-
032	15' STEEL SWNG GATE	EA	-	-	2	1	-	-	-	-	-	-	-	-	-	-	2	1
033	12" CONCRETE PAD (POLE VAULT)	SY	-	-	56	-	-	-	-	-	-	-	-	-	-	-	56	-
034	TRAIL RE-ESTABLISHMENT	LS	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
035	BULL NOSE CURB AND GUTTER	EA	-	-	1	3	-	-	-	-	-	-	-	-	-	-	1	3
036	4" YELLOW LANE LINE	LF	-	-	-	-	-	-	-	-	-	-	189	57	-	-	189	57
037	4" WHITE LINE	LF	-	-	-	-	-	-	-	-	-	-	-	691	-	-	-	691
038	ARROW STRIPING	EA	-	-	-	-	-	-	-	-	-	-	5	8	-	-	5	8
039	CHEV/RON STRIPING	SF	-	-	-	-	-	-	-	-	-	-	-	126	-	-	-	126
040	ADA ACCESSIBLE PARKING STRIPING	EA	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
041	CROSS WALK STRIPING	SF	-	-	-	-	-	-	-	-	-	-	47	47	-	-	47	47
042	YIELD SIGN (R1-2)	EA	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1
043	PEDESTRIAN CROSSING AHEAD (R1-6)	EA	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1
044	10 MPH SIGN (R2-1)	EA	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1
045	NO RIGHT TURN SIGN (R3-1)	EA	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
046	KEEP RIGHT SIGN (R4-7b)	EA	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
047	DO NOT ENTER SIGN (R5-1)	EA	-	-	-	-	-	-	-	-	-	-	2	2	-	-	2	2
048	ONE WAY SIGN (R6-1)	EA	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1
049	ADA ACCESSIBLE PARKING SIGN (R7-8)	EA	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
050	NO PARKING SIGN (R8-3a)	EA	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
051	8' SIGN POST	EA	-	-	-	-	-	-	-	-	-	-	8	8	-	-	8	8
052	RESET GROUND SIGN	EA	-	-	-	-	-	-	-	-	-	-	3	8	-	-	3	8
053	GEOTEXTILE (SEPARATOR) (CLASS 2)	SY	-	-	-	-	-	-	93	-	-	-	-	-	-	-	93	-
054	RIPRAP (9 INCH)	CY	-	-	-	-	-	-	21	-	-	-	-	-	-	-	21	-
055	RIPRAP (12 INCH)	CY	-	-	-	-	-	-	25	-	-	-	-	-	-	-	25	-
056	SOIL RIPRAP (9 INCH)	CY	-	-	-	-	-	-	6	-	-	-	-	-	-	-	6	-
057	CONCRETE CLASS B (MISCELLANEOUS)	CY	-	-	-	-	-	-	3	6	-	-	-	-	-	-	3	6
058	18 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	-	-	-	-	-	-	76	53	-	-	-	-	-	-	76	53
059	24 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	-	-	-	-	-	-	21	-	-	-	-	-	-	-	21	-
060	18 INCH REINFORCED CONCRETE END SECTION	EA	-	-	-	-	-	-	3	-	-	-	-	-	-	-	3	-



Print Date: 4/13/2022

File Name: School General-06 SDAQ-02.dgn

Horiz. Scale: 1:1      Vert. Scale: None

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COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800

Sheet Revisions		
Date:	Comments	Init.



As Constructed

No Revisions:

Revised:

Void:

MONUMENT ACADEMY  
SUMMARY OF APPROXIMATE  
QUANTITIES (SDAQ-02)

Designer: C. BEASLEY  
Detailer: J. WILKERT  
Sheet Subset: GENERAL

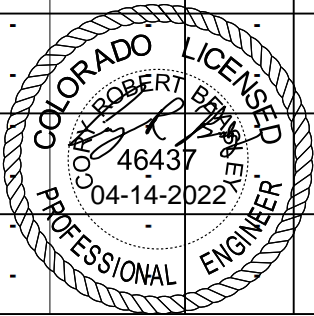
Structure Numbers  
Subset Sheets: 6 of 8

Project No./Code

Sheet Number 6 of 81

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ITEM NO.	CONTRACT ITEM	UNITS	REMOVAL		ROADWAY		UTILITIES		DRAINAGE		EROSION		TRAFFIC		WALLS		PROJECT TOTALS	
			BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT
061	INLET TYPE R L5 (5 FOOT)	EA	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
062	MANHOLE SLAB BASE (5 FOOT)	EA	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
063	MANHOLE SLAB BASE (10 FOOT)	EA							1		-	-	-	-	-	-	1	-
064	6 INCH PIPE UNDERDRAIN	LF	-	-	-	-	-	-	79	-	-	-	-	-	-	-	79	-
065	18 INCH TRASH GUARD	EA	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-
066	BLOCK FACING	SF	-	-	-	-	-	-	-	-	-	-	-	-	3,154	-	3,154	-
067	CONDUCTOR AWG NO 10	LF	-	-	-	-	2,550	350	-	-	-	-	-	-	-	-	2,550	350
068	CONDUCTOR AWOG NO 12	LF	-	-	-	-	1,025	175	-	-	-	-	-	-	-	-	1,025	175
069	CONDUIT PLASTIC 1-1/4 INCH	LF	-	-	-	-	850	130	-	-	-	-	-	-	-	-	850	130
070	PULL BOX COMPOSITE - TYPE 1	EA	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
071	HIGH EFFICACY LED LUMINAIRE	EA	-	-	-	-	5	-	-	-	-	-	-	-	-	-	5	-
072	LUMINAIRE POLE TYPE 1	EA	-	-	-	-	5	-	-	-	-	-	-	-	-	-	5	-
073	FOUNDATION CONCRETE	EA	-	-	-	-	5	-	-	-	-	-	-	-	-	-	5	-
074	WIRING	LS	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
075	TOPSOIL (OFFSITE)	CY	-	-	-	-	-	-	-	-	240	100	-	-	-	-	240	100
076	TOPSOIL (WETLAND)	CY	-	-	-	-	-	-	-	-	21	-	-	-	-	-	21	-
077	EROSION LOG TYPE 1 (12 INCH)	LF	-	-	-	-	-	-	-	-	1,100	500	-	-	-	-	1,100	500
078	SILT FENCE	LF	-	-	-	-	-	-	-	-	80	-	-	-	-	-	80	-
079	AGGREGATE BAG	LF	-	-	-	-	-	-	-	-	75	275	-	-	-	-	75	275
080	CONCRETE WASHOUT STRUCTURE	EA	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	1
081	VEHICLE TRACKING PAD	EA	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	1
082	**MAINTENANCE AGGREGATE (VEHICLE TRACKING PAD)	CY	-	-	-	-	-	-	-	-	5	5	-	-	-	-	5	5
083	ORGANIC FERTILIZER	POUNDS	-	-	-	-	-	-	-	-	360	140	-	-	-	-	360	140
084	COMPOST (MECHANICALLY APPLIED)	CY	-	-	-	-	-	-	-	-	40	15	-	-	-	-	40	15
085	HUMATE	POUNDS	-	-	-	-	-	-	-	-	120	45	-	-	-	-	120	45
086	MYCORRHIZAE	POUNDS	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
087	ELEMENTAL SULFUR	POUNDS	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
088	SEEDING (NATIVE) DRILL	ACRE	-	-	-	-	-	-	-	-	0.75	0.25	-	-	-	-	0.75	0.25
089	SEEDING (WETLAND) BROADCAST	ACRE	-	-	-	-	-	-	-	-	0.10	-	-	-	-	-	0.10	-
090	MULCHING (WEED FREE)	ACRE	-	-	-	-	-	-	-	-	0.70	0.30	-	-	-	-	0.70	0.30



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File Name: SchoolGeneral-07 SDAQ-03.dgn  
Horiz. Scale: 1:1      Vert. Scale: None

**HDR** 5555 TECH CENTER DRIVE, SUITE 310  
COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800

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Sheet Revisions		
Date:	Comments	Init.

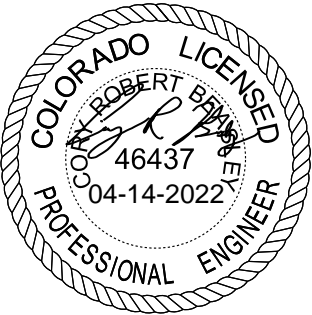


As Constructed	MONUMENT ACADEMY SUMMARY OF APPROXIMATE QUANTITIES (SDAQ-03)			Project No./Code
No Revisions:				
Revised:	Designer: C. BEASLEY	Structure Numbers		
	Detailer: J. WILKERT			
Void:	Sheet Subset: GENERAL	Subset Sheets: 7 of 8	Sheet Number 7 of 81	



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ITEM NO.	CONTRACT ITEM	UNITS	REMOVAL		ROADWAY		UTILITIES		DRAINAGE		EROSION		TRAFFIC		WALLS		PROJECT TOTALS	
			BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT	BACK	FRONT
091	MULCH TRACKIFIER	POUNDS	-	-	-	-	-	-	-	-	145	55	-	-	-	-	145	55
092	EXTENDED LANDSCAPE PRESERVATION	LS	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
093	SOIL RETENTION BLANKET (COCONUT) BIODEGRADABLE CLASS 2)	SY	-	-	-	-	-	-	-	-	750	-	-	-	-	-	750	-
094	FENCE (PLASTIC)	LF	-	-	-	-	-	-	-	-	1,050	200.00	-	-	-	-	1,050	200
095	CONSTRUCTION SURVEYING	HOUR	-	-	25	25	-	-	-	-	-	-	-	-	-	-	25	25
096	CONSTRUCTION SURVEYING	LS	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
097	F/A LANDSCAPE	LS	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-



Print Date: 4/13/2022

File Name: SchoolGeneral-07 SDAQ-04.dgn

Horiz. Scale: 1:1      Vert. Scale: None

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Sheet Revisions		
Date:	Comments	Init.



As Constructed

No Revisions:

Revised:

Void:

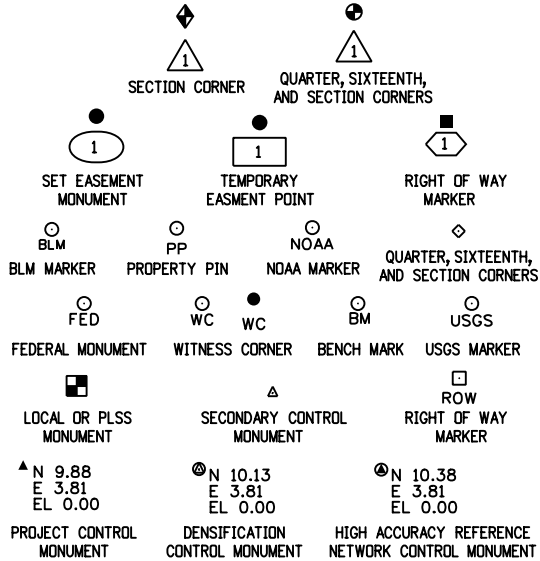
MONUMENT ACADEMY  
SUMMARY OF APPROXIMATE  
QUANTITIES (SDAQ-04)

Designer: C. BEASLEY  
Detailer: J. WILKERT  
Sheet Subset: GENERAL

Structure Numbers  
Subset Sheets: 8 of 8

Project No./Code

Sheet Number 8 of 81



# EL PASO COUNTY, COLORADO

## PROJECT CONTROL DIAGRAM

### MONUMENT ACADEMY RECIRCULATION PLAN

Highway 105 MP 3.91 to 4.90, 0.99 miles

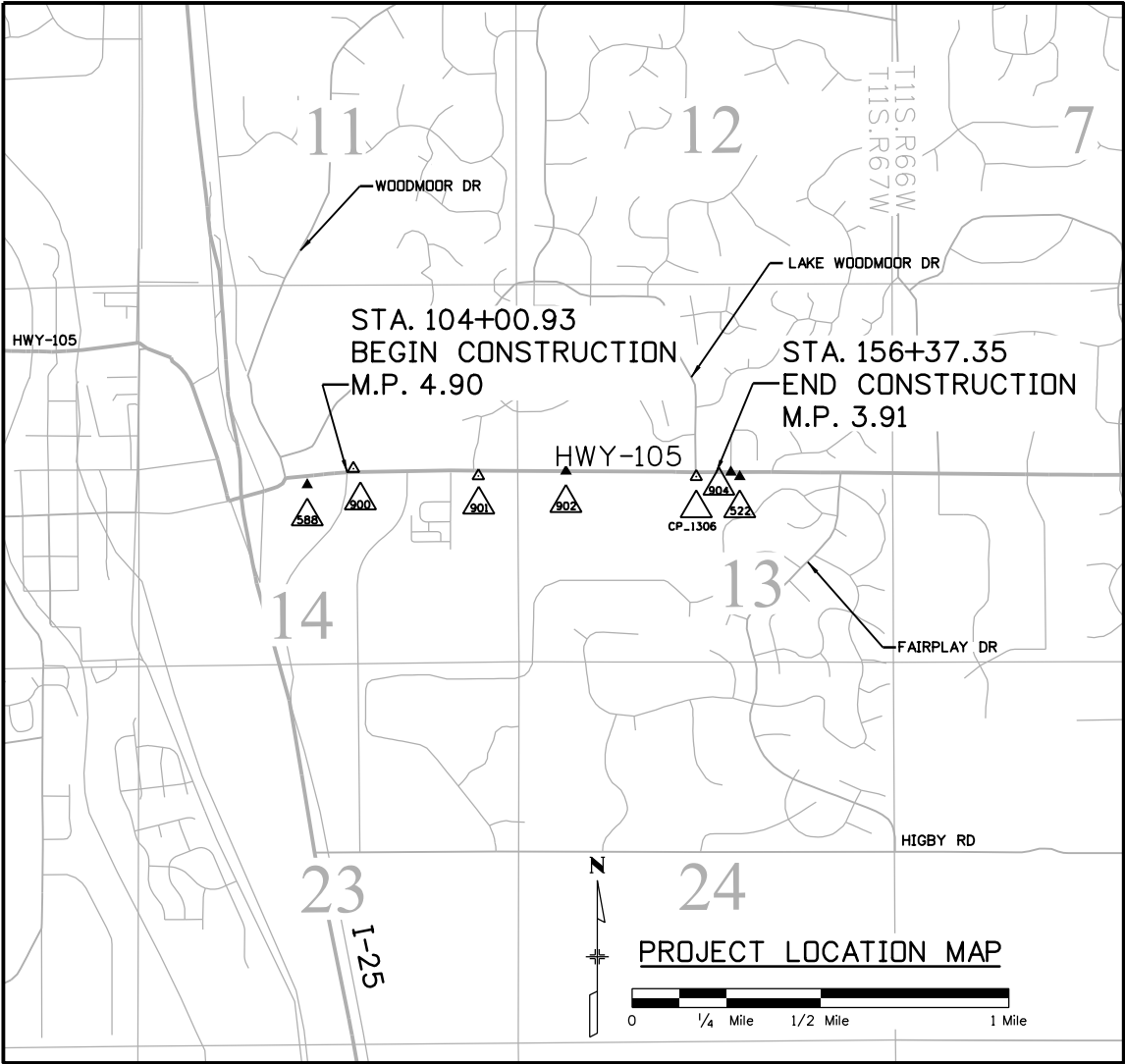
Section 13 & 14 Township 11 South, Range 67 West  
of the 6th Principal Meridian  
County of El Paso, Colorado

**Note:** For a complete listing of symbology used within this set of plans, please refer to the M-100-1 Standard Symbols of the Colorado Department of Transportation M&S Standards Publication. Existing features are shown as screened weight (gray scale), except as noted with the word (existing). Proposed or new features are shown as full weight without screening, except as noted with the word (proposed).

**Notes:**

1. This project Control Diagram is not a boundary survey of the adjoining property and is prepared for this project's purposes only. No determination has been made to determine if the found monuments as shown are in proper position or if they are at the corners they are intended to monument.
2. This plan set is subject to change and may not be the most current set. It is the user's responsibility to verify that this set is the most current. The information on the attached drawing is not valid unless this copy bears an original signature of the Professional Land Surveyor hereon named.
3. Refer to the M-629-1 Survey Monuments of the Standard Plans dated July 31, 2019, (Revised January 31, 2022), found in the Colorado Department of Transportation, M & S Standards for typical survey monument descriptions.
4. Any person who knowingly removes, alters or defaces any public land survey monument or land monument or accessory, commits a class two (2) misdemeanor pursuant to state statute 18-4-508, CRS.
5. After the date of the survey Farnsworth Group shall not be responsible for resetting or rehabilitating any corner monument or controlling corners shown hereon.

**NOTICE:** According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.



Basis of Bearings: Bearings used in the calculations of coordinates are based on a grid bearing of N88°55'53"E 5985.56 feet from Control Point 588 to Control Point 522. Both monuments are CDOT Type II, marked appropriately for their point number and with highway number. The survey data was obtained from a Global Navigation Satellite System (GNSS) static survey and is based on the National Geodetic Survey (NGS) National Spatial Reference System (NSRS).

Project Coordinates are based on El Paso County  
Project No. STA 105A-014.

Basis of Elevation: Orthometric elevations are based on benchmark CS 110, PID: DM9842, a stainless steel rod in sleeve with CDOT logo, stamped CD 110 2009, with a NAVD 88 elevation of 6843.25 ft., a Second Order Class II benchmark. GNSS elevations across the project area are Geoid 12A derived and check by conventional total station, trigonometric leveling field methods.

Coordinate Datum: Project coordinates are modified Colorado State Plane Central Zone NAD '83/(2011) coordinates. The combined elevation/scale factor used to modify the coordinates from state plane to project coordinates is 1.000399720. These coordinates are not truncated, are only scaled, and are based on the CDOT Plans SHE 105A-010, dated 10 February 2003, in order to match the 2011 Western States Surveying photogrammetry project which was found to be on the 2003 project datum.

Project coordinates expressed as U.S. Survey Foot = 3937/1200 meters.

Project Coordinates Northing U.S. Survey Foot =  
(State Plane Coordinate Northing \* 1.000399720) .  
Project Coordinates Easting U.S. Survey Foot =  
(State Plane Coordinate Northing \* 1.000399720) .


Date of original field survey: July 30, 2015.  
Date of last subsequent survey: January 30, 2017.

**SURVEYOR STATEMENT (PROJECT CONTROL)**

I, Lorelei A. Ward, a professional land surveyor licensed in the State of Colorado, do hereby state that this Control Diagram was prepared and the field survey it represents was performed under my responsible charge and based upon my knowledge, information and beliefs, is in accordance with applicable standards of practice defined by the State of Colorado. This statement is not a guaranty or warranty, either expressed or implied.

PLS No. 34982



File Name: MonumentAcademy_PCD-TitleSht.dgn
Horiz. Scale: 1:1
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 FAX: 303-860-7139

Sheet Revisions		
Date:	Comments	Init.





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HIGHWAY 105 MONUMENT ACADEMY RECIRCULATION PLAN PROJECT CONTROL TITLE SHEET
LAST MODIFIED DATE: 04/06/2022

Project No./Code
SUBSET: 1 of 4
SHEET NO.: 9 of 81

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NGS GEODETIC COORDINATE SUMMARY TABLE (NOT SHOWN)									
Point No.	Geodetic Coordinates NAD-83(2011)		Elip Height (NAVD88) (m)	Ortho Height (m)	Mapping Angle	Grid Scale Factor	NAD 83(2011) Zone 0502		Description
	Latitude(N)	Longitude(W)					SP Northing(m)	SP Easting(m)	
4 BB RESET	N 39°04'15.70243"	W 104°45'42.46355"	2290.732	2307.621	0d27'56"	0.999936046	442,453.15	978,281.06	USGA 3.25in BRASS BENCH MARK DISK '4 BB RESET 1984' (Not Shown)
CS 110	N 39°03'27.00423"	W 104°51'09.89599"	2069.426	2085.826	0d24'30"	0.999936197	440,891.51	970,421.41	STAINLESS STEEL DEEP ROD - CDOT LOGO 'CS 110 2009' (Not Shown)
MONUMENT	N 39°02'49.29840"	W 104°50'47.22846"	2047.726	2064.182	0d24'44"	0.999936352	439,732.75	970,974.73	CGS BRASS TRANGULATION STATION DISK 'MONUMENT 1953' (Not Shown)
S0170	N 39°07'45.35831"	W 104°45'59.00936"	2190.817	2207.681	0d27'46"	0.999936031	448,914.70	977,831.15	3 1/4in ROW BRASS DISK ON CONCRETE MONUMENT 'S0107 4' STA 27+75 (Not Shown)
V 395	N 39°07'28.12971"	W 104°51'51.03747"	2222.915	2239.238	0d24'04"	0.999935993	448,319.73	969,380.27	STAINLESS STEEL DEEP ROD - NGS LOGO 'V 395 1983' (Not Shown)



GEODETIC COORDINATE TABLE									
Point No.	Geodetic Coordinates NAD-83(2011)		Elip Height (NAVD88) (ft)	Ortho Height (m)	Mapping Angle	Grid Scale Factor	NAD 83(2011) Zone 0502		Description
	Latitude(N)	Longitude(W)					SP Northing(m)	SP Easting(m)	
522	N 39°05'34.38440"	W 104°50'19.28716"	2,174.665	2,191.150	0d25'01"	0.999935920	444,828.074	971,609.513	CDOT TYPE II MONUMENT '522' M.P. 3.8
588	N 39°05'33.70502"	W 104°51'35.17397"	2,120.829	2,137.172	0d24'14"	0.999935920	444,794.062	969,786.159	CDOT TYPE II MONUMENT '588' M.P. 5.08
900	N 39°05'35.86460"	W 104°51'27.06376"	2,120.142	2,136.501	0d24'19"	0.999935919	444,862.030	969,980.570	2in WSSI ALUMINUM CAP '8'
901	N 39°05'34.73634"	W 104°51'05.14972"	2,139.762	2,156.163	0d24'33"	0.999935920	444,830.981	970,507.394	#5 REBAR AZTEC ORANGE PLASTIC CAP PLS 38064
902	N 39°05'35.30190"	W 104°50'49.76834"	2,149.447	2,165.877	0d24'42"	0.999935919	444,851.068	970,876.871	#5 REBAR WITH 'FARNSWORTH CONTROL POINT' RED PLASTIC CAP
904	N 39°05'35.01503"	W 104°50'20.83072"	2,172.019	2,188.501	0d25'01"	0.999935919	444,847.250	971,572.281	#5 REBAR WITH 'FARNSWORTH CONTROL POINT' RED PLASTIC CAP
CP_1306	N 39°05'34.43382"	W 104°50'26.92194"	2,161.044	2,177.515	0d24'57"	0.999935920	444,828.264	971,426.044	2in ALUMINUM CAP - WSSI PANEL POINT 1306

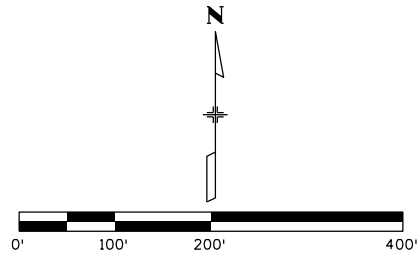


PROJECT COORDINATE TABLE				
Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
522	1,459,990.13	3,188,963.06	7,188.80	CDOT TYPE II MONUMENT '522' M.P. 3.8
588	1,459,878.50	3,182,978.55	7,011.70	CDOT TYPE II MONUMENT '588' M.P. 5.08
900	1,460,101.58	3,183,616.64	7,009.50	2in WSSI ALUMINUM CAP '8'
901	1,459,999.67	3,185,345.75	7,074.01	#5 REBAR AZTEC ORANGE PLASTIC CAP PLS 38064
902	1,460,065.60	3,186,558.42	7,105.88	#5 REBAR WITH 'FARNSWORTH CONTROL POINT' RED PLASTIC CAP
904	1,460,053.07	3,188,840.86	7,180.11	#5 REBAR WITH 'FARNSWORTH CONTROL POINT' RED PLASTIC CAP
CP_1306	1,459,990.75	3,188,360.89	7,144.07	2in ALUMINUM CAP - WSSI PANEL POINT 1306

File Name: MonumentAcademy_PCD-Coord01.dgn		Sheet Revisions				 5775 Mark Dabbling Blvd - Suite 190 COLORADO SPRINGS, CO 80919 (719) 590-9194 / (719) 590-9111 Fax www.f-w.com	HIGHWAY 105 MONUMENT ACADEMY RECIRCULATION PLAN PROJECT CONTROL MONUMENT COORDINATE TABLES		Project No./Code
Horiz. Scale: 1:1		Date:	Comments	Init.					
									SUBSET: 2 of 4
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 FAX: 303-860-7139							LAST MODIFIED DATE: 04/06/2022		SHEET NO.: 10 of 81

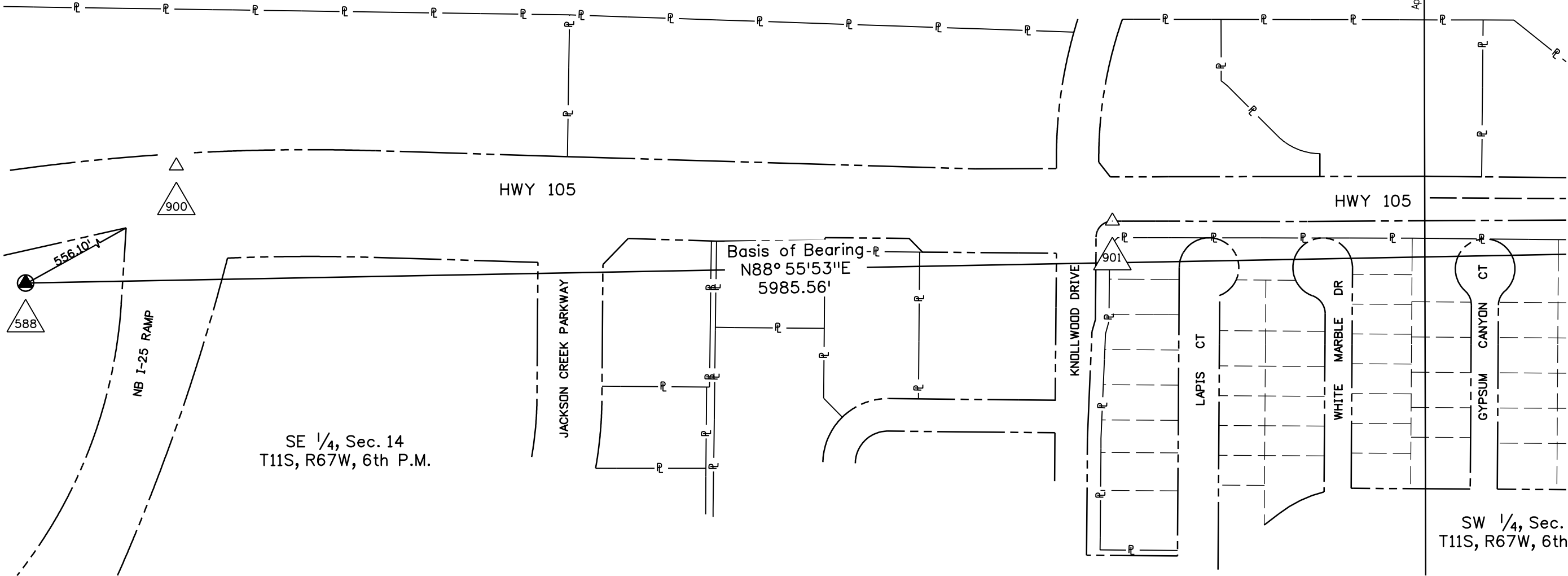


j:\finley 9:33:58 AM P:\2015\0151007\RDW\_Survey Drawings\Control\_Diagrams\Monument\_Academy\MonumentAcademy\_PCD-Plan01.dgn



NE 1/4, Sec. 14  
T11S, R67W, 6th P.M.

NW 1/4, Sec. 13  
T11S, R67W, 6th P.M.



SE 1/4, Sec. 14  
T11S, R67W, 6th P.M.

SW 1/4, Sec. 13  
T11S, R67W, 6th P.M.

File Name: MonumentAcademy_PCD-Plan01.dgn
Horiz. Scale: 1:200
<b>HDR</b> 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 FAX: 303-860-7139

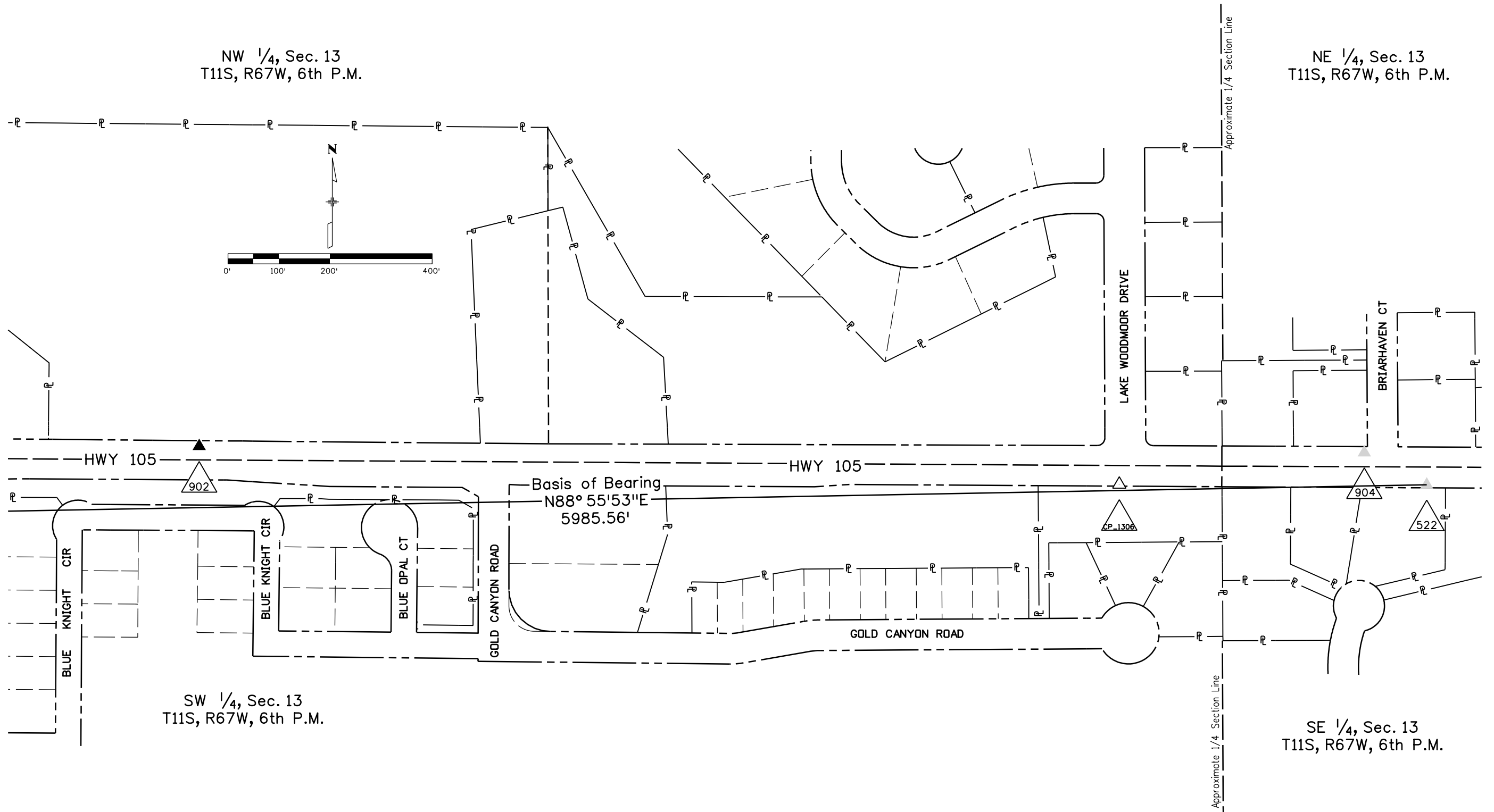
Sheet Revisions		
Date:	Comments	Init.



**Farnsworth**  
GROUP  
5775 Mark Dabbling Blvd - Suite 190  
COLORADO SPRINGS, CO 80919  
(719) 590-9194 / (719) 590-9111 Fax  
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HIGHWAY 105 MONUMENT ACADEMY RECIRCULATION PLAN PROJECT CONTROL PLAN SHEET	Project No./Code
	SUBSET: 3 of 4
	SHEET NO.: 11 of 81
LAST MODIFIED DATE: 04/06/2022	

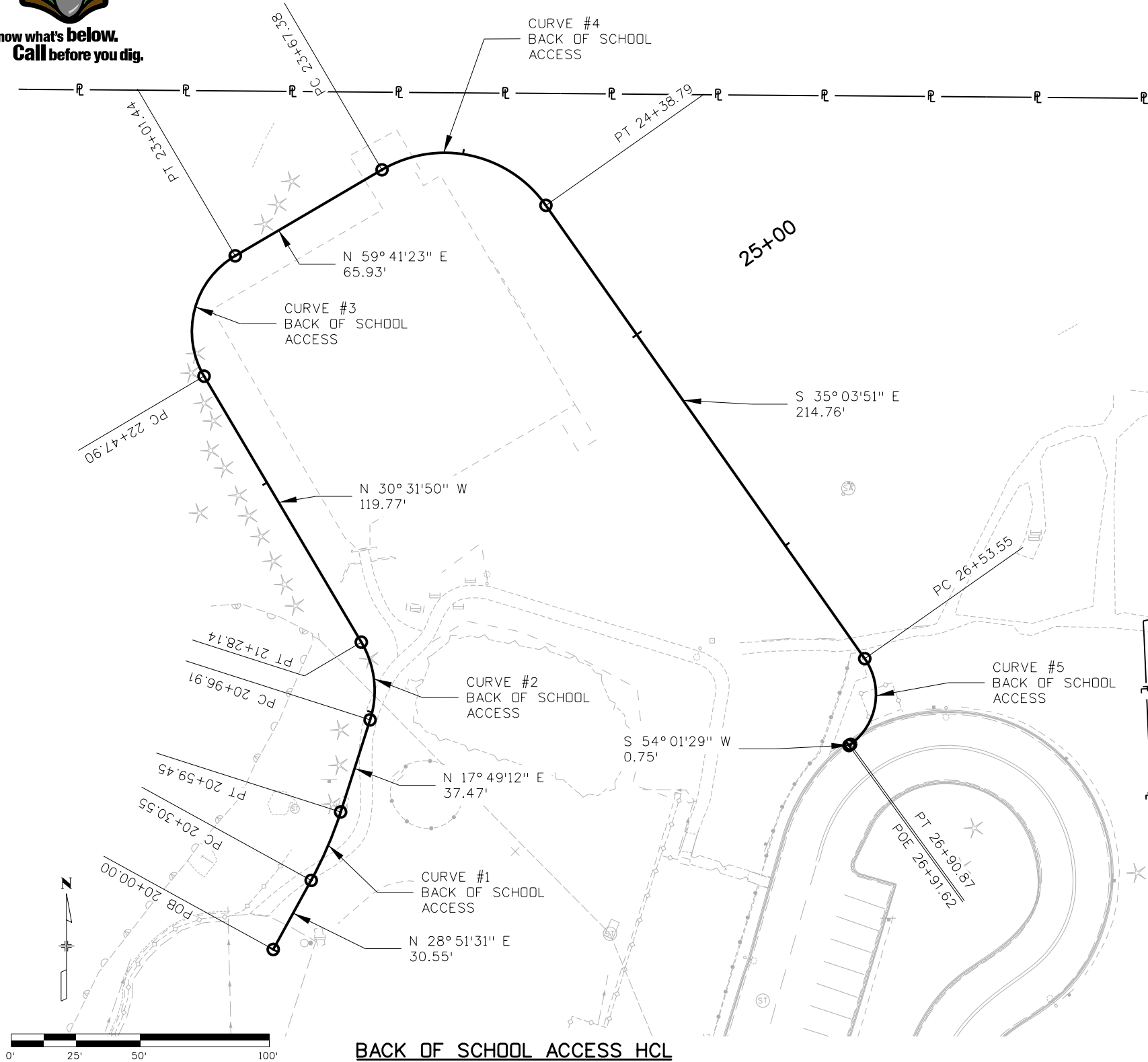
j:\finley 9:34:45 AM P:\2015\0151007.00 - Hwy-105 Monument To Sh-B3\51007.RDW\_Survey Drawings\Control Diagrams\Monument\_Academy MonumentAcademy\_PCD-Plan02.dgn



File Name: MonumentAcademy_PCD-Plan02.dgn		Sheet Revisions				 5775 Mark Dabbling Blvd - Suite 190 COLORADO SPRINGS, CO 80919 (719) 590-9194 / (719) 590-9111 Fax www.f-w.com	HIGHWAY 105 MONUMENT ACADEMY RECIRCULATION PLAN PROJECT CONTROL PLAN SHEET		Project No./Code	
Horiz. Scale: 1:200		Date:	Comments	Init.						
 1670 BROADWAY, SUITE 3400 DENVER, COLORADO 80202 Phone: 303-764-1520 FAX: 303-860-7139							LAST MODIFIED DATE: 04/06/2022		SUBSET: 4 of 4	
									SHEET NO.: 12 of 81	



Know what's below.  
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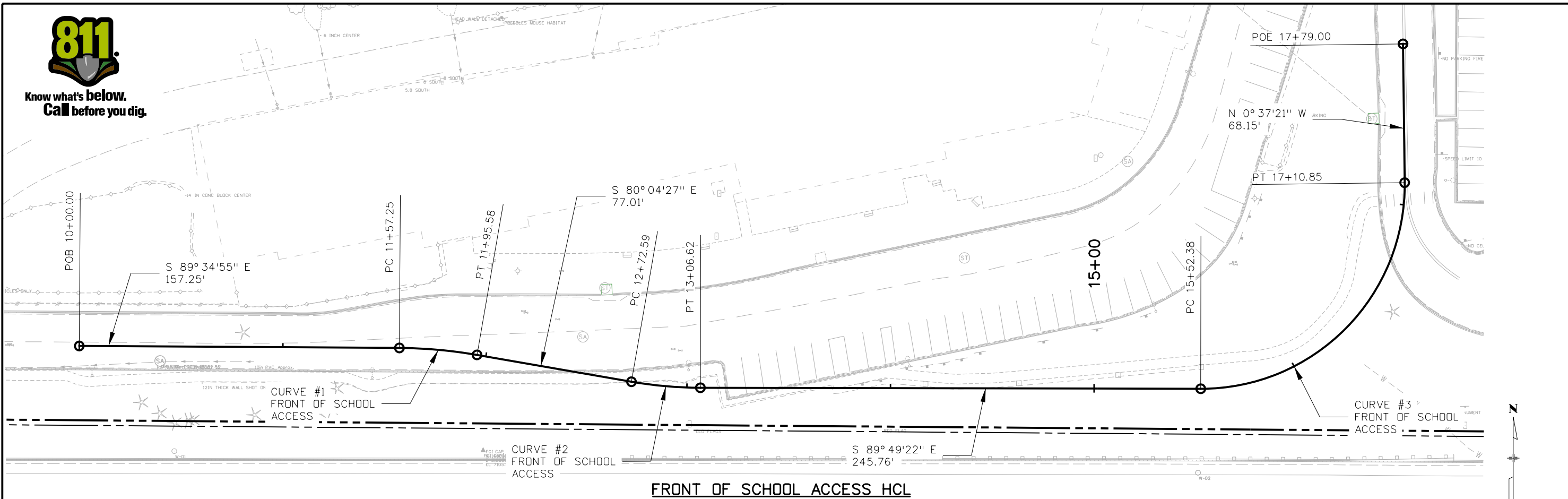


BACK OF SCHOOL ACCESS HCL					
		Station	Northing	Easting	
	Element: Linear				
	POB ( )	20+00.00	1460363.34	3186753.64	
	PC ( )	20+30.55	1460390.09	3186768.38	
	Tangential Direction:	N 28°51'31" E			
	Tangential Length:	30.55			
CURVE #1 BACK OF SCHOOL ACCESS	Element: Circular				
	PC ( )	20+30.55	1460390.09	3186768.38	
	PI ( )	20+45.04	1460402.79	3186775.38	
	CC ( )		1460462.49	3186637.01	
	PT ( )	20+59.45	1460416.58	3186779.81	
	Radius:	150.00			
	Delta:	11°02'19" Left			
	Degree of Curvature (Arc):	38°11'50"			
	Length:	28.90			
	Tangent:	14.49			
	Chord:	28.85			
	Middle Ordinate:	0.70			
	External:	0.70			
	Tangent Direction:	N 28°51'31" E			
	Radial Direction:	S 61°08'29" E			
	Chord Direction:	N 23°20'21" E			
	Radial Direction:	S 72°10'48" E			
	Tangent Direction:	N 17°49'12" E			
		Element: Linear			
		PT ( )	20+59.45	1460416.58	3186779.81
PC ( )		20+96.91	1460452.25	3186791.28	
Tangential Direction:		N 17°49'12" E			
Tangential Length:		37.47			
CURVE #2 BACK OF SCHOOL ACCESS	Element: Circular				
	PC ( )	20+96.91	1460452.25	3186791.28	
	PI ( )	21+13.52	1460468.07	3186796.36	
	CC ( )		1460463.58	3186756.05	
	PT ( )	21+28.14	1460482.37	3186787.92	
	Radius:	37.00			
	Delta:	48°21'02" Left			
	Degree of Curvature (Arc):	154°51'12"			
	Length:	31.22			
	Tangent:	16.61			
	Chord:	30.31			
	Middle Ordinate:	3.25			
	External:	3.56			
	Tangent Direction:	N 17°49'12" E			
	Radial Direction:	S 72°10'48" E			
	Chord Direction:	N 6°21'19" W			
	Radial Direction:	N 59°28'10" E			
	Tangent Direction:	N 30°31'50" W			
		Element: Linear			
		PT ( )	21+28.14	1460482.37	3186787.92
PC ( )		22+47.90	1460585.54	3186727.08	
Tangential Direction:		N 30°31'50" W			
Tangential Length:		119.77			
CURVE #3 BACK OF SCHOOL ACCESS	Element: Circular				
	PC ( )	22+47.90	1460585.54	3186727.08	
	PI ( )	22+82.04	1460614.94	3186709.74	
	CC ( )		1460602.81	3186756.37	
	PT ( )	23+01.44	1460632.16	3186739.21	
	Radius:	34.00			
	Delta:	90°13'13" Right			
	Degree of Curvature (Arc):	168°31'01"			
	Length:	53.54			
	Tangent:	34.13			
	Chord:	48.18			
	Middle Ordinate:	10.00			
	External:	14.18			
	Tangent Direction:	N 30°31'50" W			
	Radial Direction:	N 59°28'10" E			
	Chord Direction:	N 14°34'47" E			
	Radial Direction:	S 30°18'37" E			
	Tangent Direction:	N 59°41'23" E			





Know what's below.  
Call before you dig.

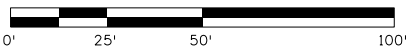


FRONT OF SCHOOL ACCESS HCL

FRONT OF SCHOOL ACCESS HCL				
	Station	Northing	Easting	
CURVE #1 FRONT OF SCHOOL ACCESS	Element: Linear			
	POB ( )	10+00.00	1460117.31	3186359.98
	PC ( )	11+57.25	1460116.17	3186517.23
	Tangential Direction:	S 89°34'55" E		
	Tangential Length:	157.25		
CURVE #2 FRONT OF SCHOOL ACCESS	Element: Circular			
	PC ( )	11+57.25	1460116.17	3186517.23
	PI ( )	11+76.46	1460116.03	3186536.44
	CC ( )		1459885.17	3186515.54
	PT ( )	11+95.58	1460112.71	3186555.36
	Radius:	231.00		
	Delta:	9°30'28" Right		
	Degree of Curvature (Arc):	24°48'12"		
	Length:	38.33		
	Tangent:	19.21		
	Chord:	38.29		
	Middle Ordinate:	0.79		
	External:	0.80		
	Tangent Direction:	S 89°34'55" E		
	Radial Direction:	S 0°25'05" E		
CURVE #3 FRONT OF SCHOOL ACCESS	Element: Linear			
	PT ( )	11+95.58	1460112.71	3186555.36
	PC ( )	12+72.59	1460099.44	3186631.21
	Tangential Direction:	S 80°04'27" E		
	Tangential Length:	77.01		

FRONT OF SCHOOL ACCESS HCL				
	Station	Northing	Easting	
CURVE #2 FRONT OF SCHOOL ACCESS	Element: Circular			
	PC ( )	12+72.59	1460099.44	3186631.21
	PI ( )	12+89.64	1460096.50	3186648.01
	CC ( )		1460296.45	3186665.69
	PT ( )	13+06.62	1460096.45	3186665.07
	Radius:	200.00		
	Delta:	9°44'55" Left		
	Degree of Curvature (Arc):	28°38'52"		
	Length:	34.03		
	Tangent:	17.06		
	Chord:	33.99		
	Middle Ordinate:	0.72		
	External:	0.73		
	Tangent Direction:	S 80°04'27" E		
	Radial Direction:	S 9°55'33" W		
CURVE #3 FRONT OF SCHOOL ACCESS	Element: Linear			
	PT ( )	13+06.62	1460096.45	3186665.07
	PC ( )	15+52.38	1460095.69	3186910.83
	Tangential Direction:	S 89°49'22" E		
	Tangential Length:	245.76		

FRONT OF SCHOOL ACCESS HCL				
	Station	Northing	Easting	
CURVE #3 FRONT OF SCHOOL ACCESS	Element: Circular			
	PC ( )	15+52.38	1460095.69	3186910.83
	PI ( )	16+53.78	1460095.37	3187012.23
	CC ( )		1460195.69	3186911.14
	PT ( )	17+10.85	1460196.77	3187011.13
	Radius:	100.00		
	Delta:	90°47'58" Left		
	Degree of Curvature (Arc):	57°17'45"		
	Length:	158.48		
	Tangent:	101.41		
	Chord:	142.40		
	Middle Ordinate:	29.78		
	External:	42.42		
	Tangent Direction:	S 89°49'22" E		
	Radial Direction:	S 0°10'38" W		
CURVE #3 FRONT OF SCHOOL ACCESS	Element: Linear			
	PT ( )	17+10.85	1460196.77	3187011.13
	POE ( )	17+79.00	1460264.92	3187010.39
	Tangential Direction:	N 0°37'21" W		
	Tangential Length:	68.15		



Print Date: 4/13/2022  
File Name: SchoolGeometry-02 Front Access.dgn  
Horiz. Scale: 1:50 Vert. Scale: None

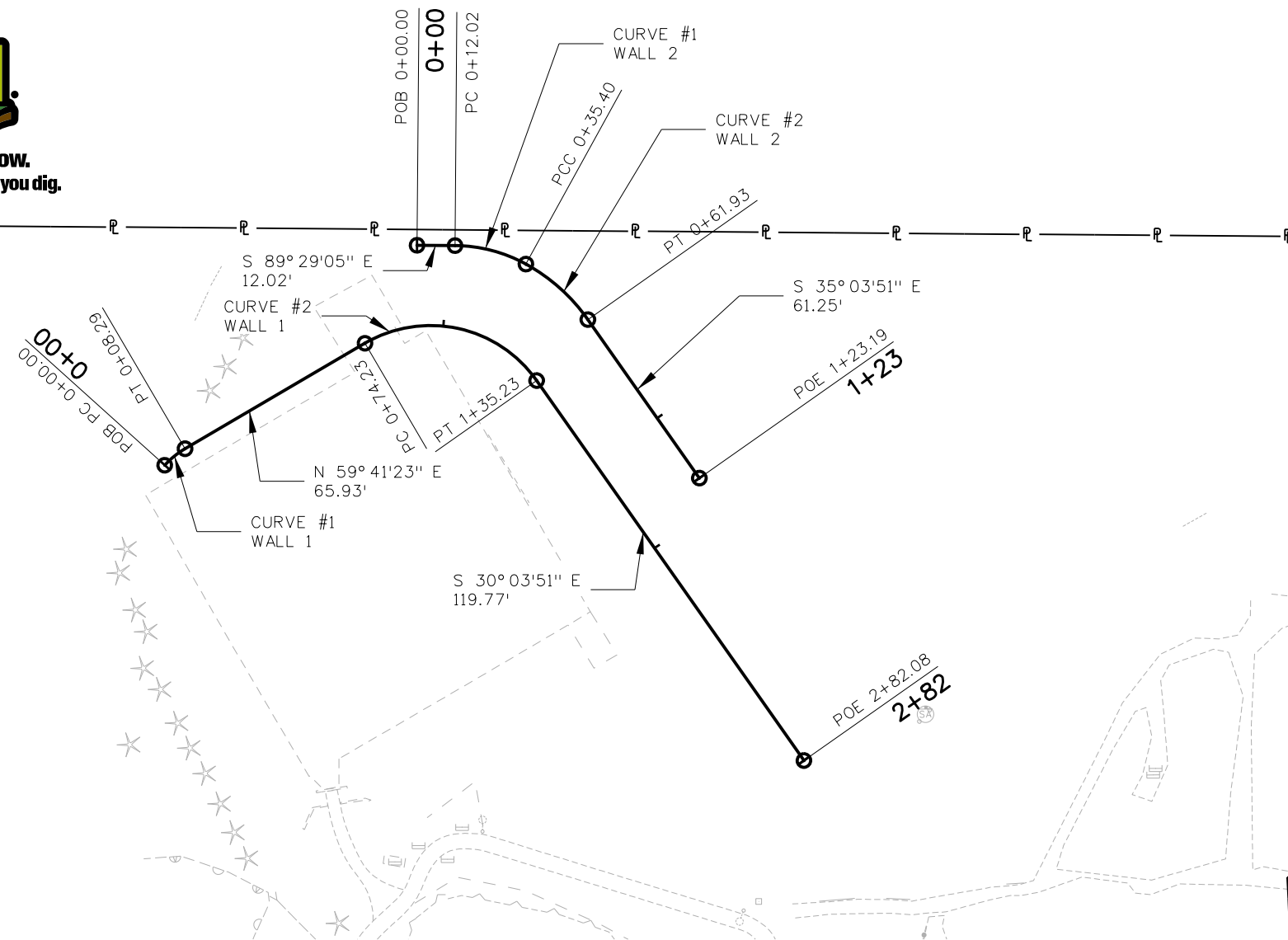
**HR** 5555 TECH CENTER DRIVE, SUITE 310  
COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800

Sheet Revisions		
Date:	Comments	Init.

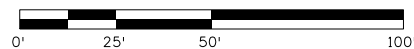



As Constructed	MONUMENT ACADEMY GEOMETRY SHEET FRONT OF SCHOOL ACCESS ROAD		Project No./Code
No Revisions:	Designer: J. WILKERT	Structure Numbers	
Revised:	Detailer: J. WILKERT		
Void:	Sheet Subset: GEOMETRY	Subset Sheets: 2 of 3	Sheet Number 14 of 81

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



SCHOOL WALL 1 & 2 HCLS



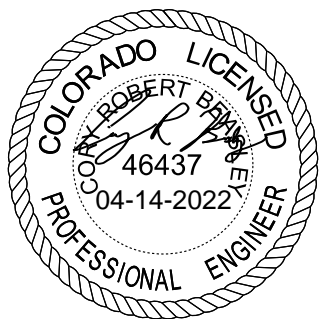
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File Name: School Geometry-03 Walls.dgn	
Horiz. Scale: 1:50	Vert. Scale: None
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919      PHONE: 719-272-8800	

Sheet Revisions			
Date:	Comments	Init.	
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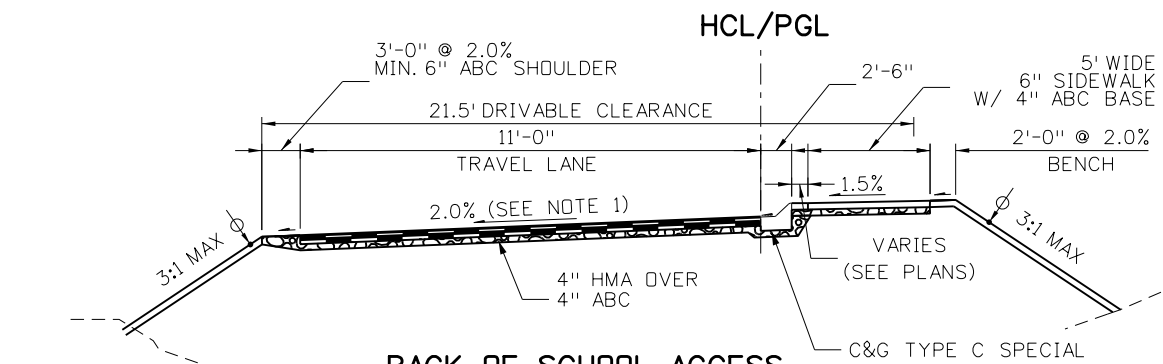
		SCHOOL WALL 1		
		Station	Northing	Easting
CURVE #1 SCHOOL WALL 1	Element: Circular			
	POC ( )	0+00.00	1460620.91	3186736.33
	PI ( )	0+04.18	1460624.01	3186739.13
	CC ( )		1460602.81	3186756.37
	PT ( )	0+08.29	1460626.12	3186742.74
	Radius:	27.00		
	Delta:	17°35'49"	Right	
	Degree of Curvature (Arc):	212°12'24"		
	Length:	8.29		
	Tangent:	4.18		
	Chord:	8.26		
	Middle Ordinate:	0.32		
	External:	0.32		
	Tangent Direction:	N 42°05'34"	E	
	Radial Direction:	N 47°54'26"	E	
	Chord Direction:	N 50°53'29"	E	
	Radial Direction:	N 30°18'37"	E	
Tangent Direction:	N 59°41'23"	E		
	Element: Linear			
	PT ( )	0+08.29	1460626.12	3186742.74
	PC ( )	0+74.23	1460659.39	3186799.66
	Tangential Direction:	N 59°41'23"	E	
	Tangential Length:	65.93		
CURVE #2 SCHOOL WALL 1	Element: Circular			
	PC ( )	0+74.23	1460659.39	3186799.66
	PI ( )	1+11.96	1460678.44	3186832.24
	CC ( )		1460624.00	3186820.35
	PT ( )	1+35.23	1460647.55	3186853.91
	Radius:	41.00		
	Delta:	85°14'46"	Right	
	Degree of Curvature (Arc):	139°44'45"		
	Length:	61.00		
	Tangent:	37.73		
	Chord:	55.53		
	Middle Ordinate:	10.83		
	External:	14.72		
	Tangent Direction:	N 59°41'23"	E	
	Radial Direction:	S 30°18'37"	E	
	Chord Direction:	S 77°41'14"	E	
	Radial Direction:	S 54°56'09"	W	
Tangent Direction:	S 35°03'51"	E		
	Element: Linear			
	PT ( )	1+35.23	1460647.55	3186853.91
	POE ( )	2+82.08	1460527.35	3186938.28
	Tangential Direction:	S 35°03'51"	E	
	Tangential Length:	146.86		

SCHOOL WALL 2					
		Station	Northing	Easting	
	Element: Linear				
	POB ( )	0+00.00	1460690.35	3186816.15	
	PC ( )	0+12.02	1460690.24	3186828.17	
	Tangential Direction:	S 89°29'05" E			
	Tangential Length:	12.02			
CURVE #1 SCHOOL WALL 2	Element: Circular				
	PC ( )	0+12.02	1460690.24	3186828.17	
	PI ( )	0+23.96	1460690.13	3186840.10	
	CC ( )		1460643.01	3186827.74	
	PT ( )	0+35.40	1460684.37	3186850.55	
	Radius:	47.23			
	Delta:	28°21'35" Right			
	Degree of Curvature (Arc):	121°18'54"			
	Length:	23.38			
	Tangent:	11.93			
	Chord:	23.14			
	Middle Ordinate:	1.44			
	External:	1.48			
	Tangent Direction:	S 89°29'05" E			
	Radial Direction:	S 0°30'55" W			
	Chord Direction:	S 75°18'18" E			
	Radial Direction:	S 28°52'30" W			
	Tangent Direction:	S 61°07'30" E			
	CURVE #2 SCHOOL WALL 2	Element: Circular			
		PCC ( )	0+35.40	1460684.37	3186850.55
PI ( )		0+48.90	1460677.85	3186862.37	
CC ( )			1460633.28	3186822.38	
PT ( )		0+61.93	1460666.80	3186870.13	
Radius:		58.34			
Delta:		26°03'40" Right			
Degree of Curvature (Arc):		98°12'47"			
Length:		26.54			
Tangent:		13.50			
Chord:		26.31			
Middle Ordinate:		1.50			
External:		1.54			
Tangent Direction:		S 61°07'30" E			
Radial Direction:		S 28°52'30" W			
Chord Direction:		S 48°05'40" E			
Radial Direction:		S 54°56'09" W			
Tangent Direction:	S 35°03'51" E				
	Element: Linear				
	PT ( )	0+61.93	1460666.80	3186870.13	
	PI ( )	1+23.19	1460616.66	3186905.32	
	Tangential Direction:	S 35°03'51" E			
	Tangential Length:	61.25			

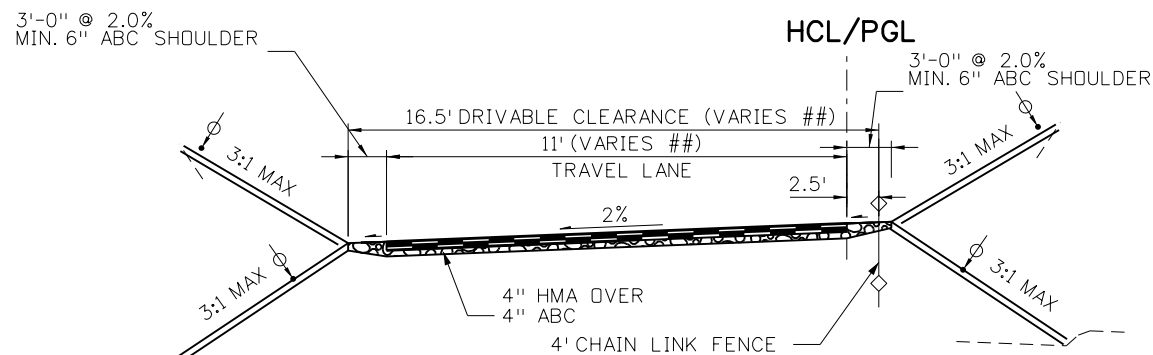


As Constructed	<div>MONUMENT ACADEMY GEOMETRY SHEET RETAINING WALLS</div>			Project No./Code
No Revisions:				
Revised:	Designer: J. WILKERT Detailer: J. WILKERT	Structure Numbers	. .	
Void:	Sheet Subset: GEOMETRY	Subset Sheets:	3 of 3	Sheet Number 15 of 81

J:\WILKERT 2:16:04 PM pw:\PW\APP\DMA001\NorthCentral\_Dmaha\Documents\200716\_000000000260510\6.0\_CAD\_BIM\6.2\_Work\_In\_Progress\Design\Drawings Monument Academy\School Roadway Typical\01 Back Access.dgn

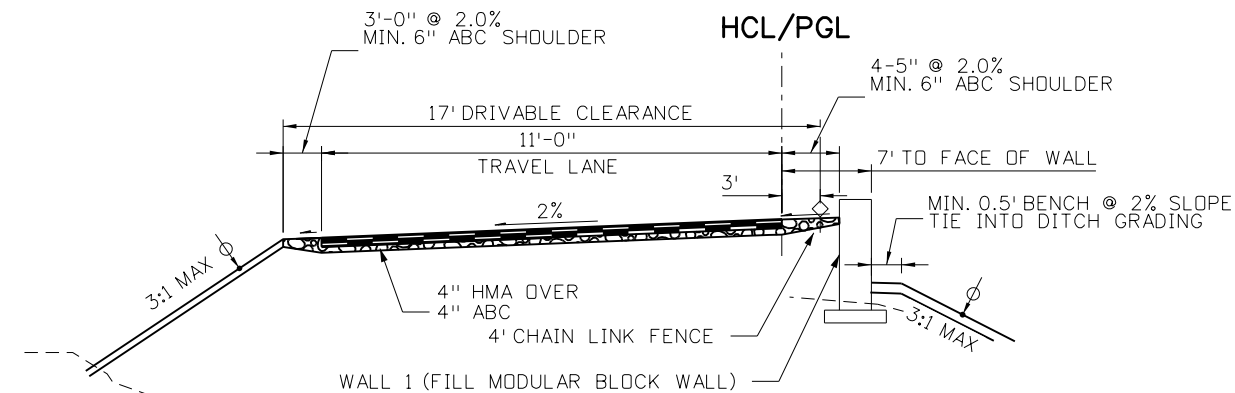


**BACK OF SCHOOL ACCESS**  
**STA. 20+10.00 TO 21+18.66**



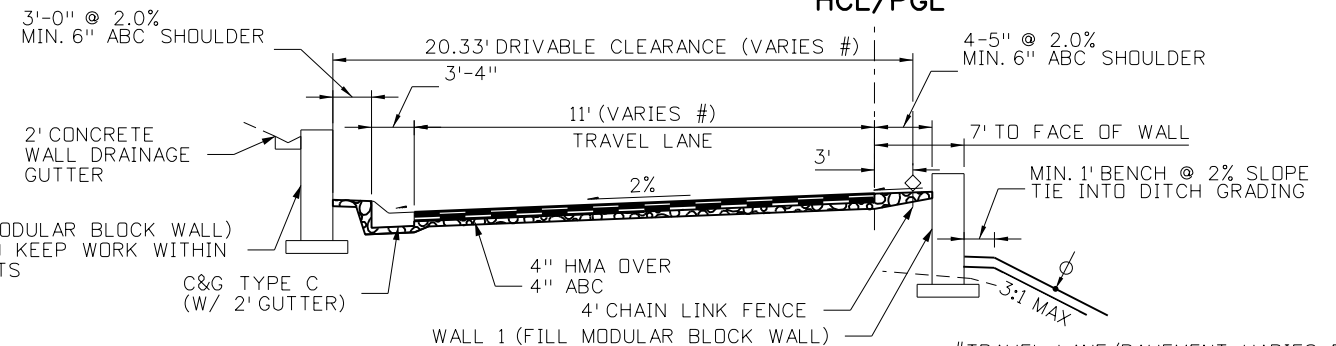
**BACK OF SCHOOL ACCESS**  
**STA. 21+18.66 TO 22+91.00**

##TRAVEL LANE/PAVEMENT VARIES FROM 11' TO 15.58' TO 11' AROUND THE CURVE  
ACCESS CLEARANCE VARIES FROM 16.5' TO 21.08' TO 16.5' AROUND THE CURVE  
STA 22+47.90 TO 23+01.14.



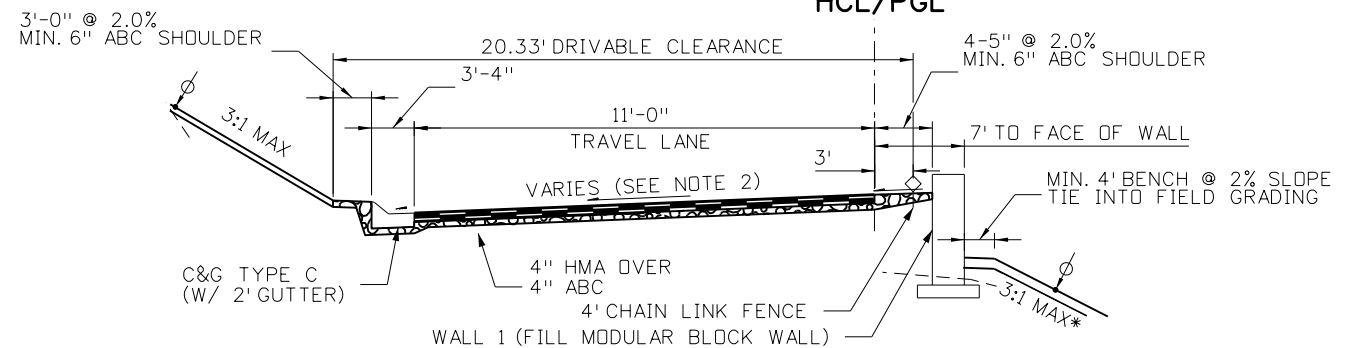
**BACK OF SCHOOL ACCESS**  
**STA. 22+91.00 TO 23+89.90**

WALL 2 (CUT MODULAR BLOCK WALL)  
CONTRACTOR TO KEEP WORK WITHIN  
PROPERTY LIMITS



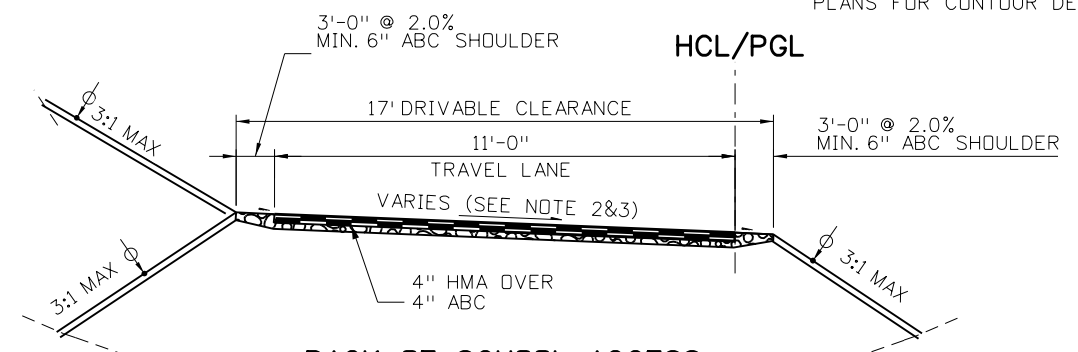
**BACK OF SCHOOL ACCESS**  
**STA. 23+89.90 TO 24+86.00**

#TRAVEL LANE/PAVEMENT VARIES FROM 11' TO 13.5' TO 11' AROUND THE CURVE  
ACCESS CLEARANCE VARIES FROM 20.3' TO 22.8' TO 20.3' AROUND THE CURVE  
STA 23+67.28 TO 24+38.79



**BACK OF SCHOOL ACCESS**  
**STA. 24+86.00 TO 25+85.65**

\* 2.5:1 MAX SLOPE ON A SKEW FROM  
STA 25+23.72 TO 25+42.29. SEE GRADING  
PLANS FOR CONTOUR DETAILS



**BACK OF SCHOOL ACCESS**  
**STA. 25+85.65 TO 26+91.62**

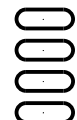


**NOTES:**

1. ROADWAY CROSS SLOPE TRANSITION 4% TO 2%,  
FROM 20+10.00 TO 20+60.00
2. ROADWAY CROSS SLOPE TRANSITION 2% TO -2%,  
FROM 25+25.00 TO 25+75.00
3. ROADWAY CROSS SLOPE TRANSITION -2% TO -5.25%,  
FROM 26+21.59 TO 26+71.59
4.  $\phi$  = 6" TOPSOIL

Print Date: 4/13/2022  
File Name: School Roadway Typical\01 Back Access.dgn  
Horiz. Scale: 1:15 Vert. Scale: None

**HR** 5555 TECH CENTER DRIVE, SUITE 310  
COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800



**Sheet Revisions**

Date:	Comments	Init.



**As Constructed**

No Revisions:

Revised:

Void:

**MONUMENT ACADEMY  
TYPICAL SECTIONS  
BACK OF SCHOOL ACCESS ROAD**

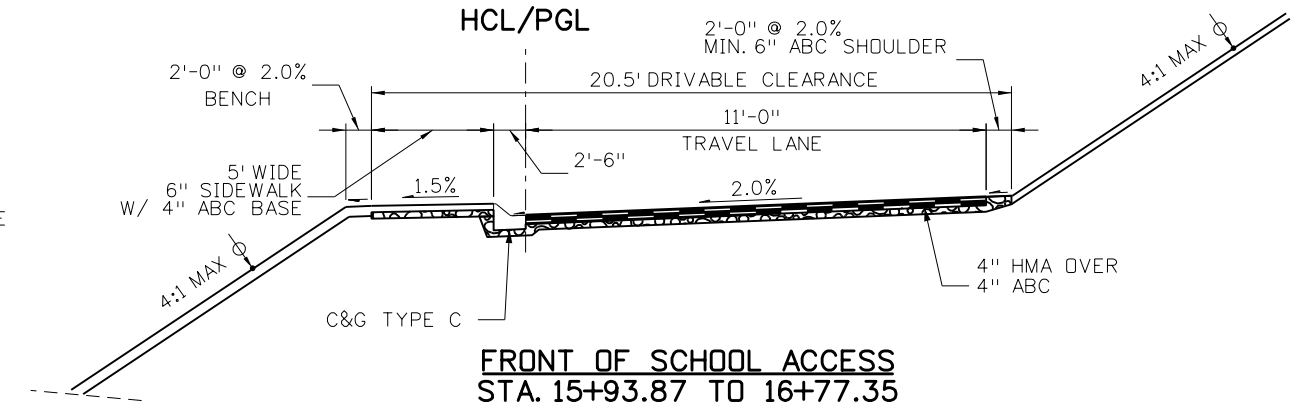
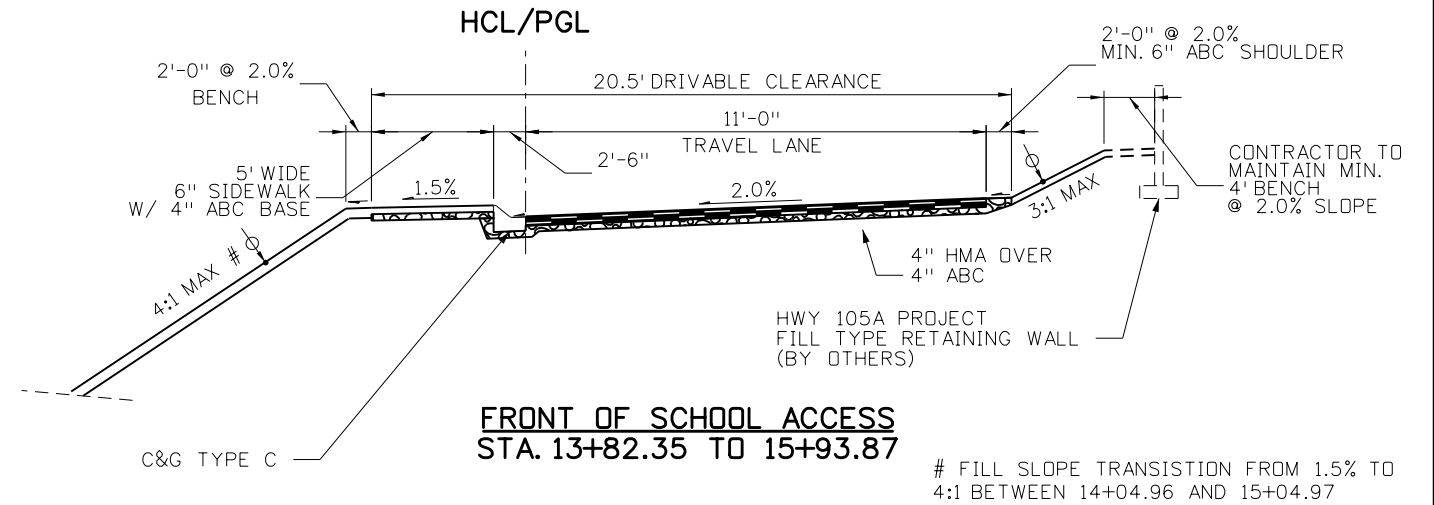
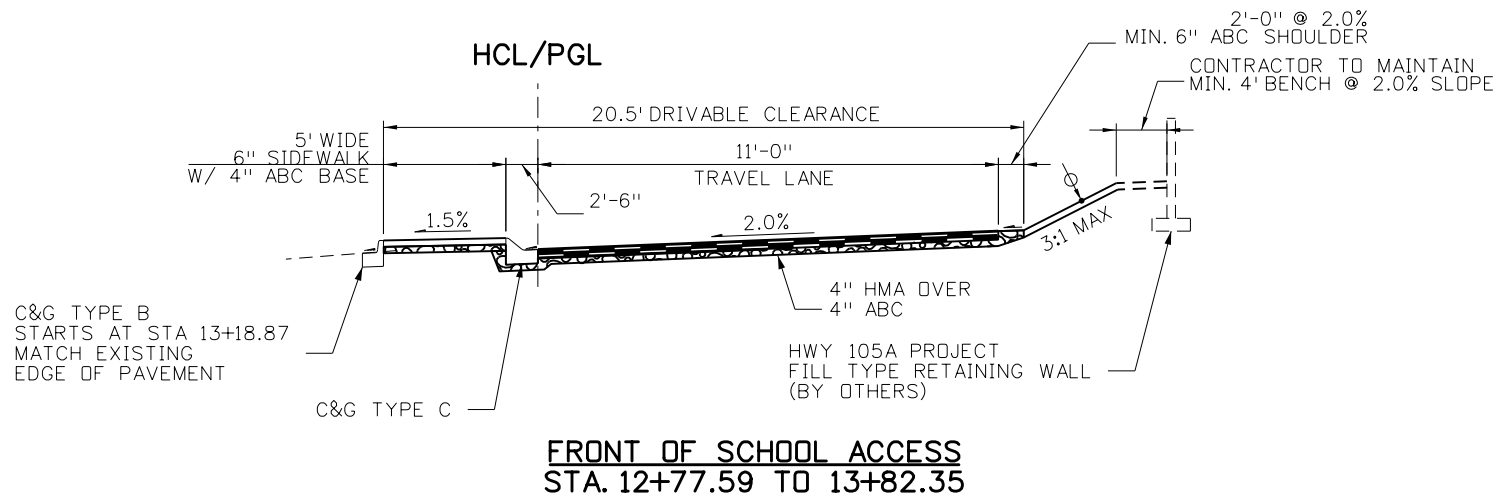
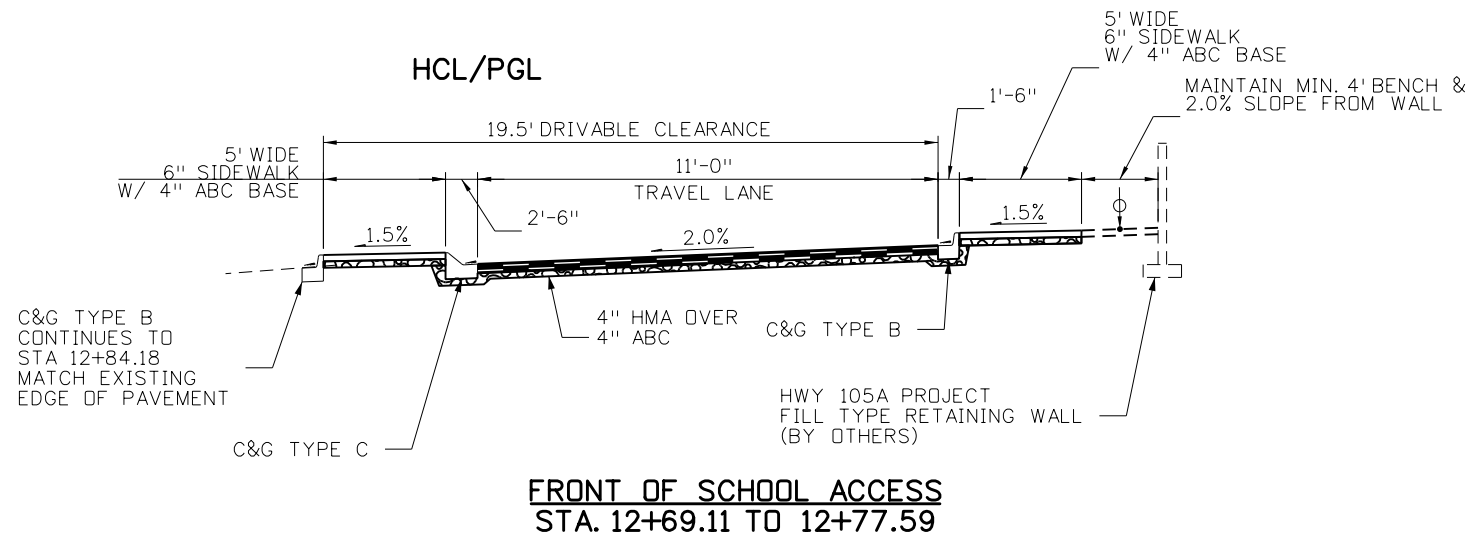
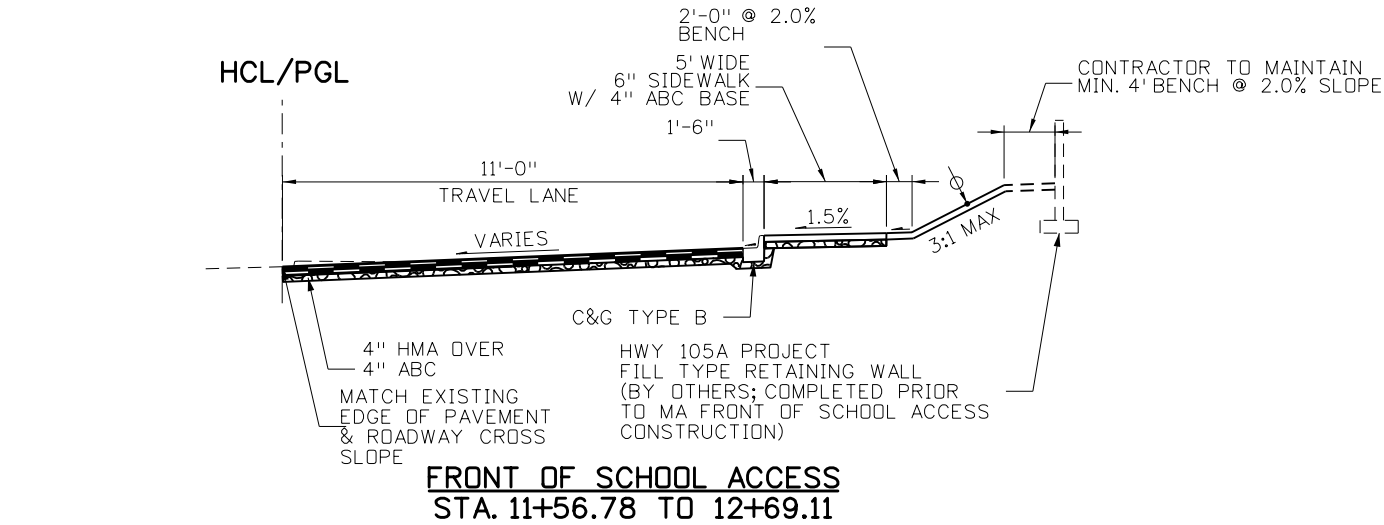
Designer:	J. WILKERT	Structure	
Detailer:	J. WILKERT	Numbers	
Sheet Subset:	TYPICAL	Subset Sheets:	1 of 2

**Project No./Code**

Sheet Number **16 of 81**



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**NOTES:**

1.  $\phi$  = 6" TOPSOIL



Print Date: 4/13/2022
File Name: SchoolRoadway Typical-02 Front Access.dgn
Horiz. Scale: 1:15 Vert. Scale: None
<b>HR</b> 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800

Sheet Revisions			
Date:	Comments	Init.	

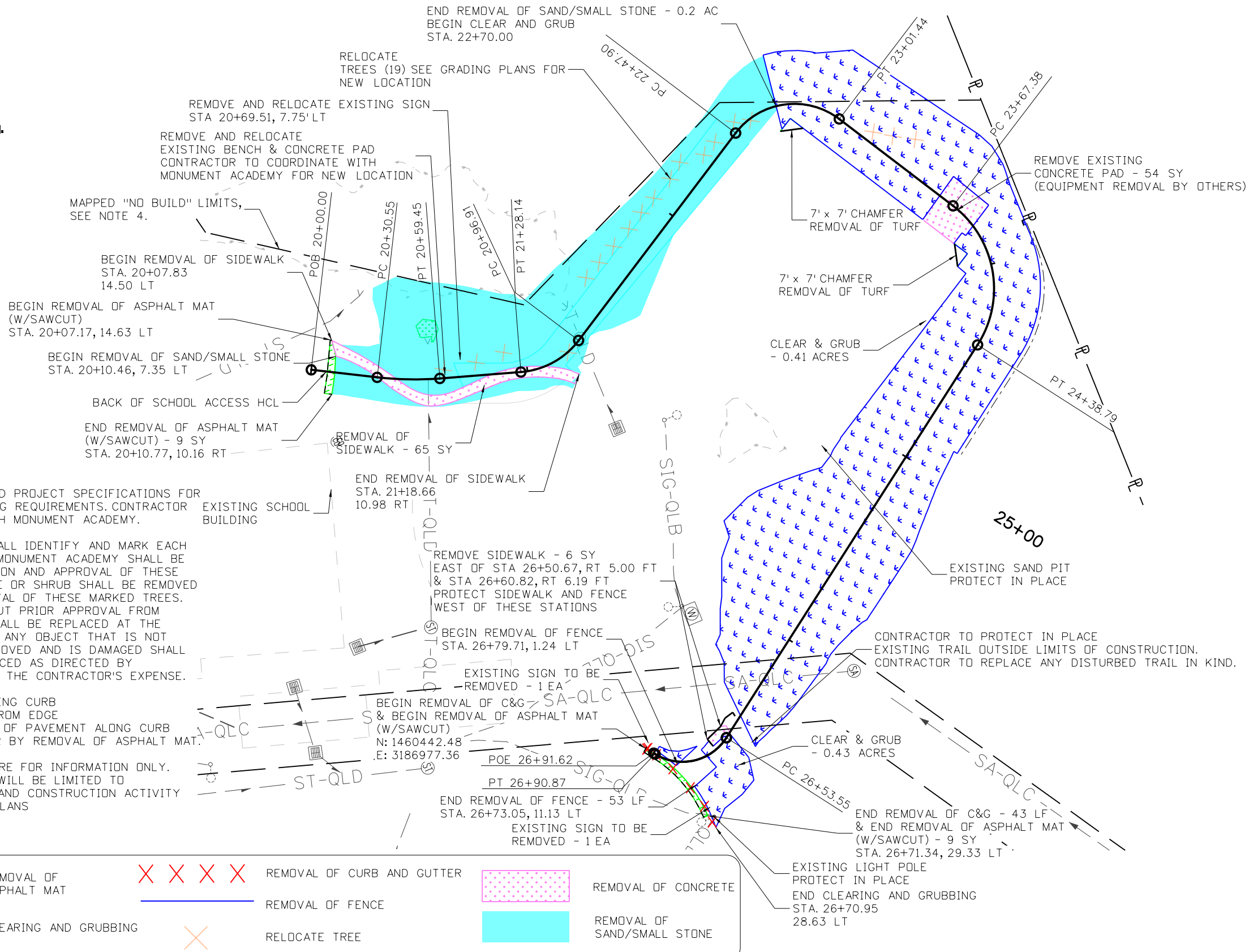


As Constructed		MONUMENT ACADEMY TYPICAL SECTIONS FRONT OF SCHOOL ACCESS ROAD			Project No./Code
No Revisions:		Designer: J. WILKERT	Structure Numbers		
Revised:		Detailer: J. WILKERT			
Void:		Sheet Subset: TYPICAL	Subset Sheets: 2 of 2		Sheet Number 17 of 81

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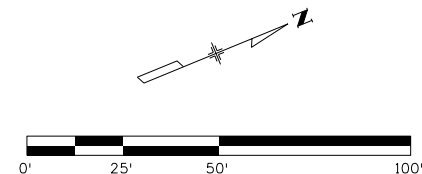


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#### NOTES:

1. SEE THESE PLANS AND PROJECT SPECIFICATIONS FOR CLEARING AND GRUBBING REQUIREMENTS. CONTRACTOR SHALL COORDINATE WITH MONUMENT ACADEMY.
2. THE CONTRACTOR SHALL IDENTIFY AND MARK EACH TREE TO BE REMOVED. MONUMENT ACADEMY SHALL BE NOTIFIED FOR INSPECTION AND APPROVAL OF THESE MARKED TREES. NO TREE OR SHRUB SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THESE MARKED TREES. TREES REMOVED WITHOUT PRIOR APPROVAL FROM MONUMENT ACADEMY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY OBJECT THAT IS NOT DESIGNATED TO BE REMOVED AND IS DAMAGED SHALL BE REPAIRED OR REPLACED AS DIRECTED BY MONUMENT ACADEMY, AT THE CONTRACTOR'S EXPENSE.
3. ALL SAWCUT FOLLOWING CURB LINES ARE 2' OFFSET FROM EDGE OF PAVEMENT. REMOVAL OF PAVEMENT ALONG CURB LINE WILL BE PAID FOR BY REMOVAL OF ASPHALT MAT.
4. "NO BUILD" LIMITS ARE FOR INFORMATION ONLY. CONTRACTOR ACTIVITY WILL BE LIMITED TO CONSTRUCTION LIMITS AND CONSTRUCTION ACTIVITY IDENTIFIED IN THESE PLANS



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File Name: SchoolRemoval-01 Back Access.dgn
Horiz. Scale: 1:50 Vert. Scale: None
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Sheet Revisions			
Date:	Comments	Init.	

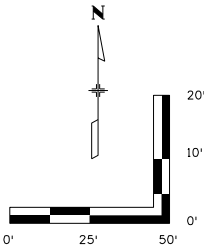
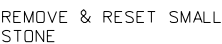


As Constructed		MONUMENT ACADEMY REMOVAL PLANS BACK OF SCHOOL ACCESS ROAD			Project No./Code
No Revisions:		Designer: J. WILKERT	Structure Numbers		
Revised:		Detailer: J. WILKERT			
Void:		Sheet Subset: REMOVAL	Subset Sheets: 1 of 2		Sheet Number 18 of 81



01	STA. 16+86.33, RT 17.85 FT
02	STA. 16+77.70, RT 37.17 FT
03	STA. 16+82.11, RT 47.41 FT
04	STA. 16+90.26, RT 68.52 FT
05	STA. 16+72.65, RT 72.21 FT
06	STA. 16+77.90, RT 101.66 FT

NOTE: ALL SAWCUT FOLLOWING CURB  
LINES ARE 2' OFFSET FROM EDGE  
OF PAVEMENT. REMOVAL OF PAVEMENT  
ALONG CURB LINE WILL BE PAID FOR  
BY REMOVAL OF ASPHALT MAT

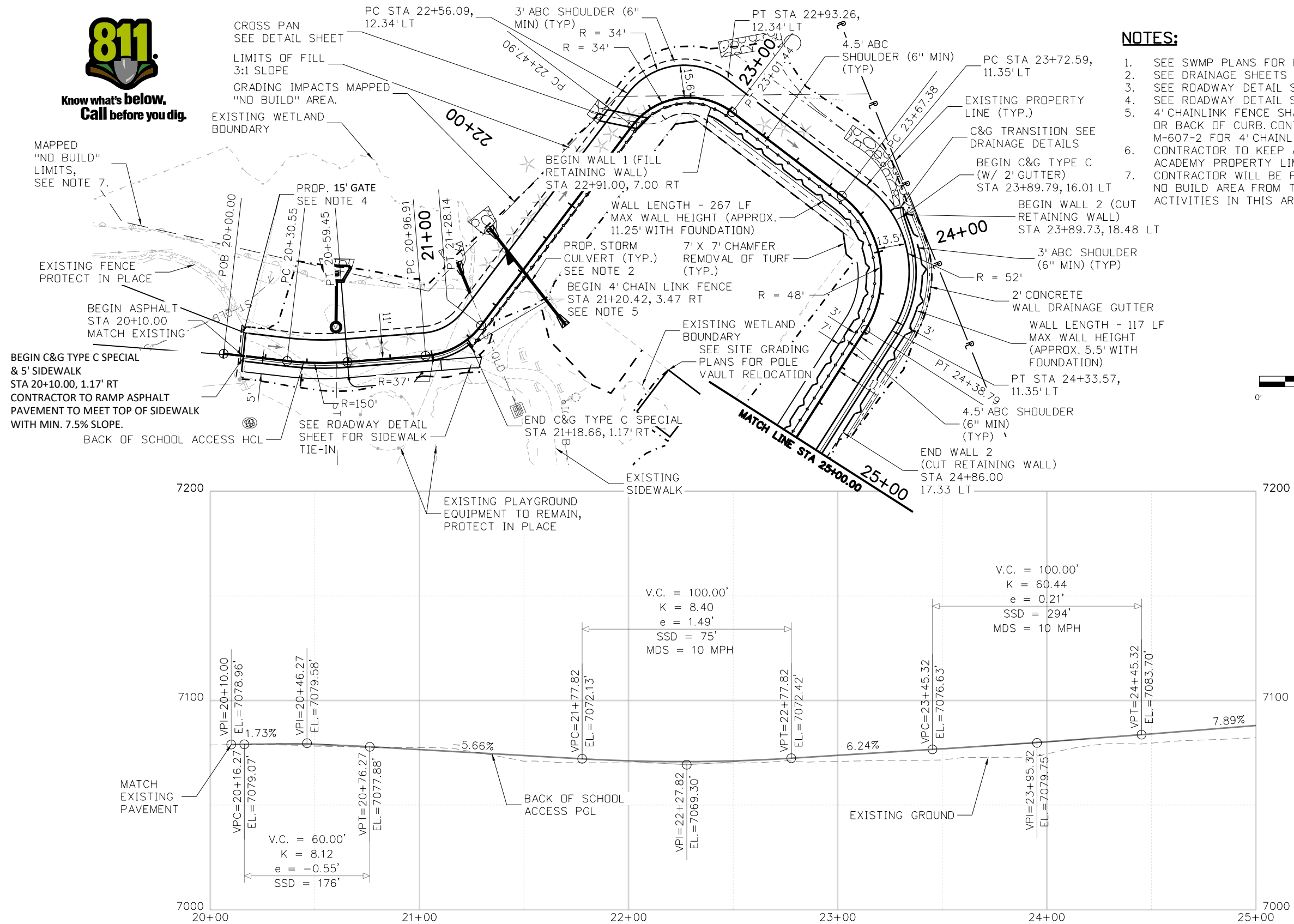


Sheet Number 19 of 81



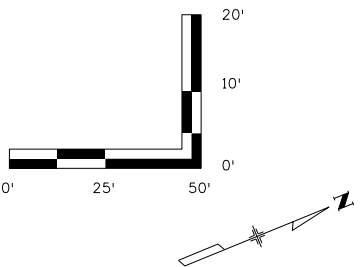


Know what's below.  
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NOTES:

1. SEE SWMP PLANS FOR BLANKETED AND SEEDED LOCATIONS.
2. SEE DRAINAGE SHEETS FOR CULVERT AND SITE GRADING DETAILS
3. SEE ROADWAY DETAIL SHEET FOR C&G DETAILS
4. SEE ROADWAY DETAIL SHEET FOR GATE DETAILS
5. 4' CHAINLINK FENCE SHALL BE INSTALLED 1' BEHIND GRAVEL SHOULDER OR BACK OF CURB. CONTRACTOR TO FOLLOW CDOT STANDARD PLAN M-607-2 FOR 4' CHAINLINK FENCE CONSTRUCTION
6. CONTRACTOR TO KEEP ALL CONSTRUCTION ACTIVITY WITHIN MONUMENT ACADEMY PROPERTY LIMITS.
7. CONTRACTOR WILL BE PROVIDED PERMISSION TO WORK AND ACCESS THE NO BUILD AREA FROM THE OWNER. THE CONTRACTOR TO COORDINATE ALL ACTIVITIES IN THIS AREA 48 HOURS PRIOR TO PROCEEDING WITH WORK.



Print Date: 4/13/2022
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Horiz. Scale: 1:50      Vert. Scale: None
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Sheet Revisions		
Date:	Comments	Init.



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No Revisions:
Revised:
Void:

MONUMENT ACADEMY ROADWAY PLAN AND PROFILE BACK OF SCHOOL ACCESS ROAD			
Designer:	J. WILKERT	Structure	
Detailer:	J. WILKERT	Numbers	
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 6

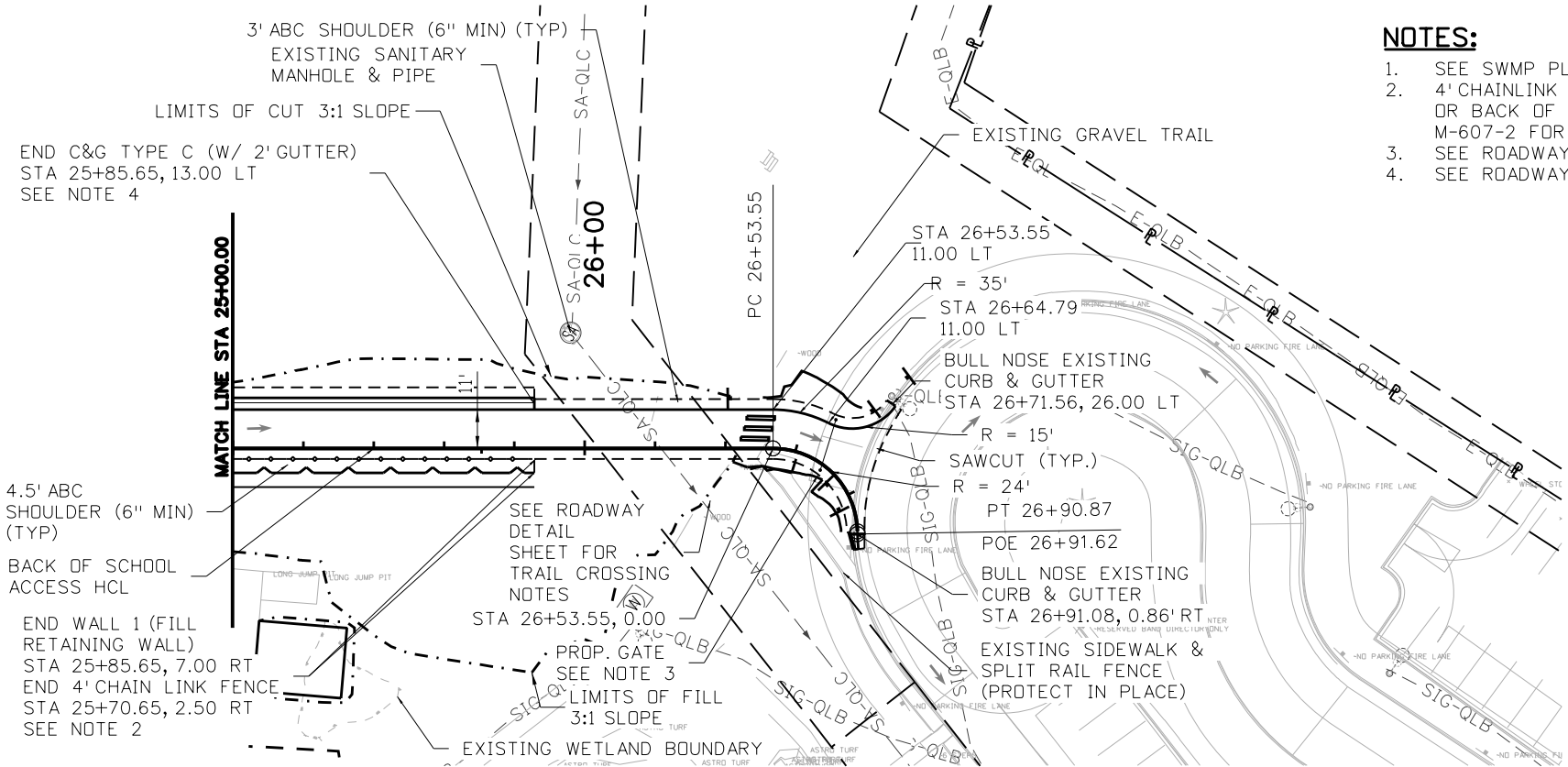
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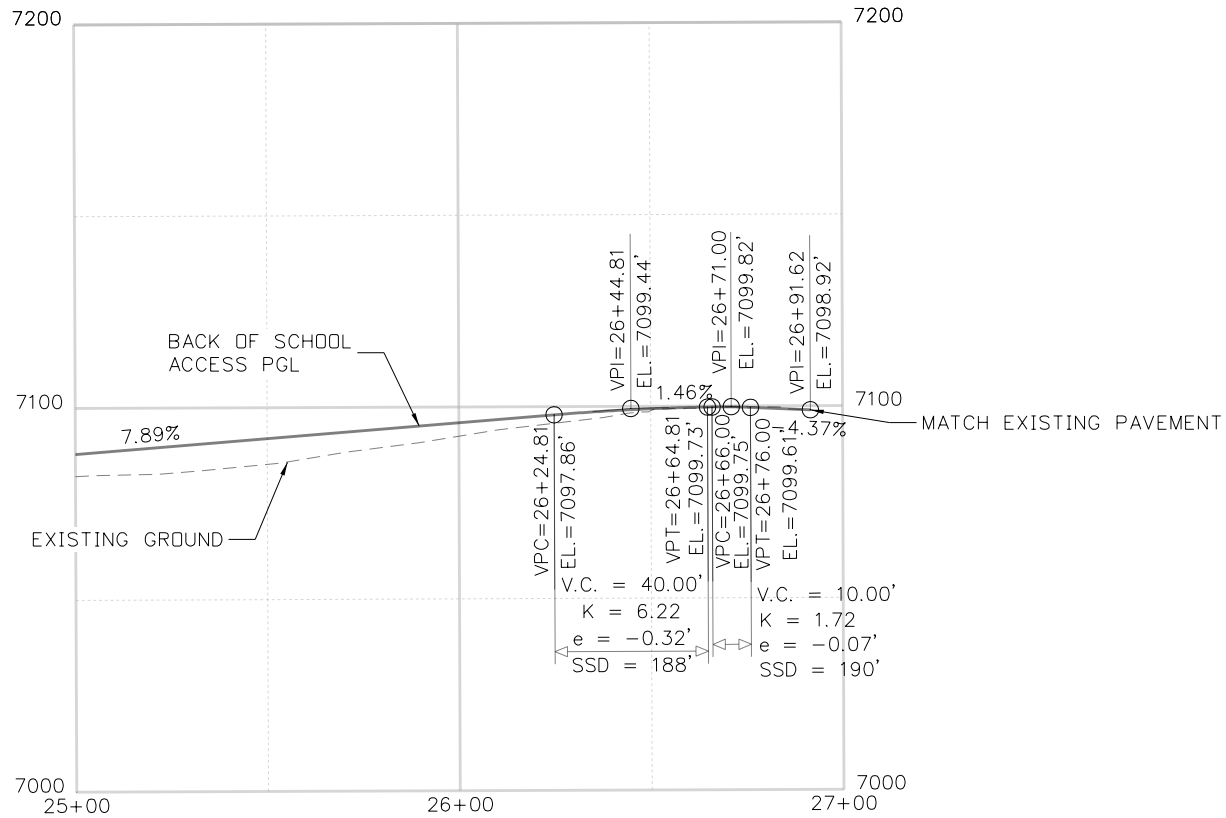



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**NOTES:**

1. SEE SWMP PLANS FOR BLANKETED AND SEEDED LOCATIONS.
2. 4' CHAINLINK FENCE SHALL BE INSTALLED 1' BEHIND GRAVEL SHOULDER OR BACK OF CURB. CONTRACTOR TO FOLLOW CDOT STANDARD PLAN M-607-2 FOR 4' CHAINLINK FENCE CONSTRUCTION
3. SEE ROADWAY DETAIL SHEET FOR GATE DETAIL
4. SEE ROADWAY DETAIL SHEET FOR C&G DETAILS



Print Date: 4/13/2022
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Sheet Revisions		
Date:	Comments	Init.



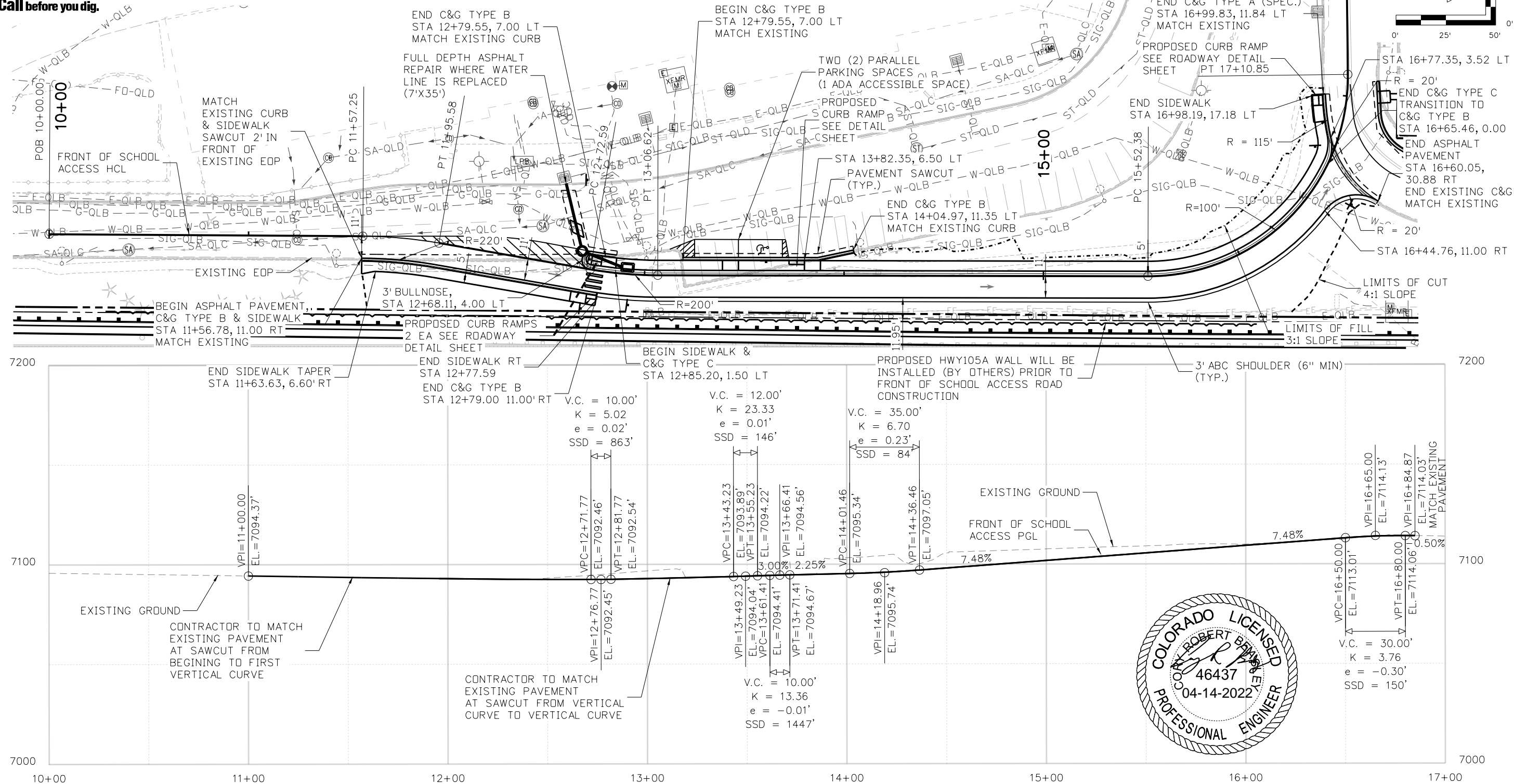
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No Revisions:		Designer: J. WILKERT	Structure Numbers		
Revised:		Detailer: J. WILKERT			
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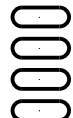
### NOTES:

- SEE SWMP PLANS FOR BLANKETED AND SEEDED LOCATIONS.



Print Date: 4/13/2022  
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Date:	Comments	Init.



### As Constructed

No Revisions:

Revised:

Void:

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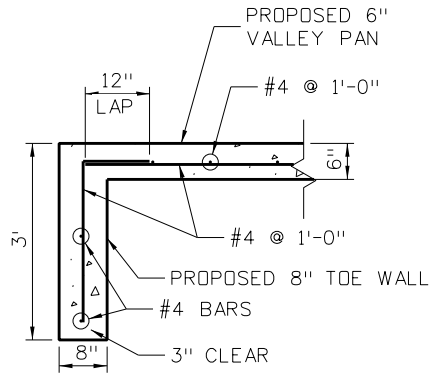
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Detailer: J. WILKERT  
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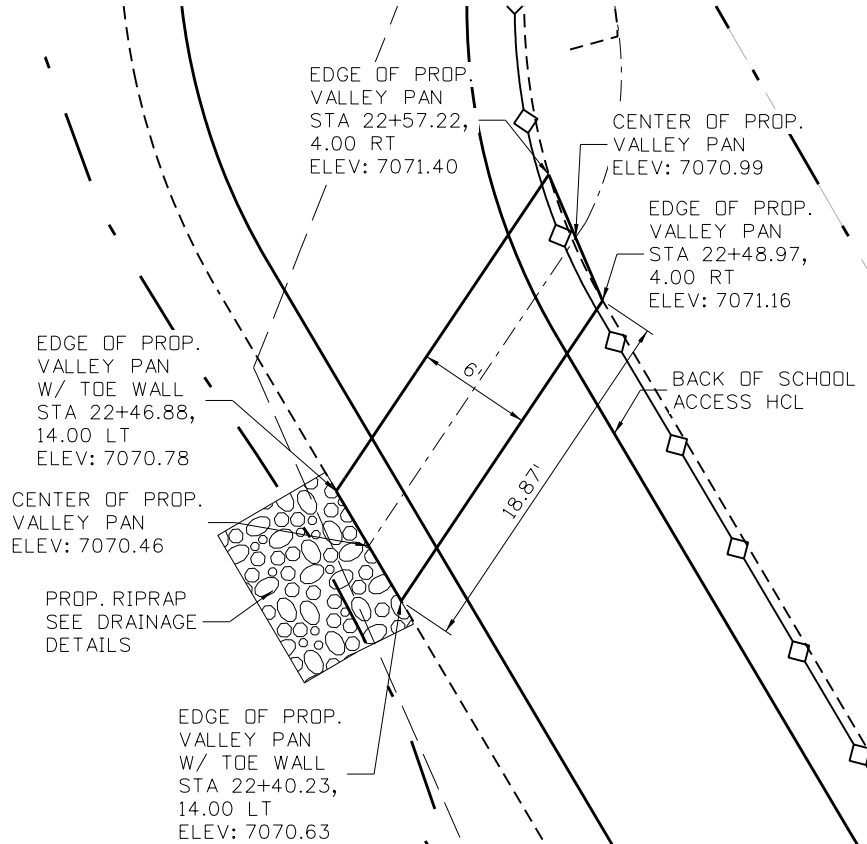
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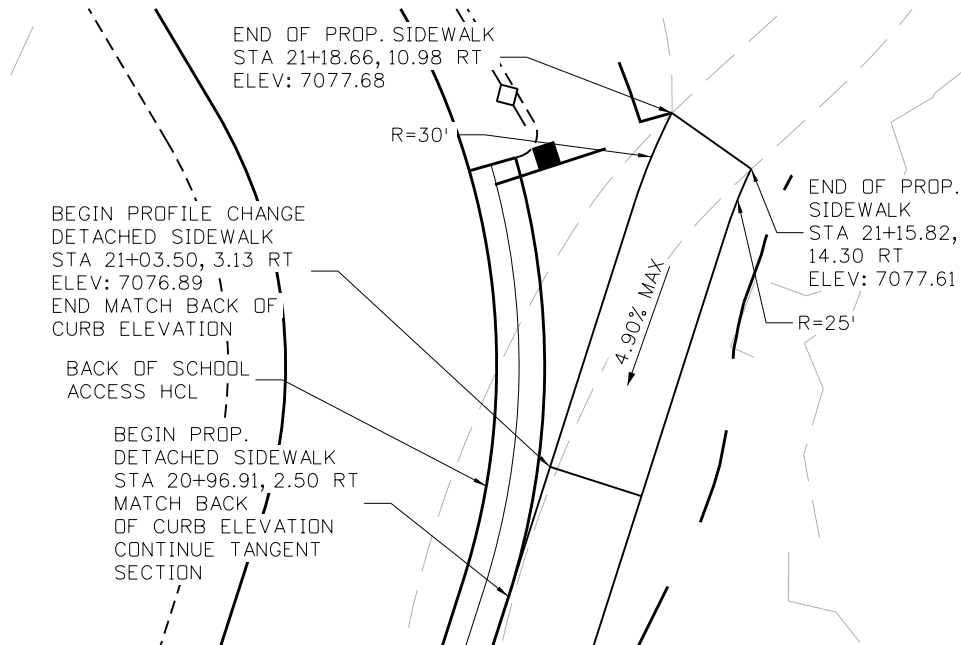
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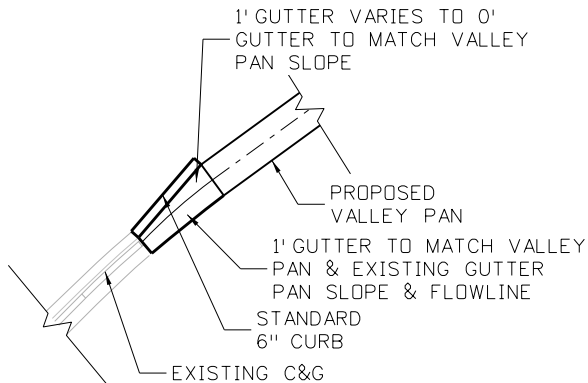
VALLEY PAN TOE WALL DETAIL



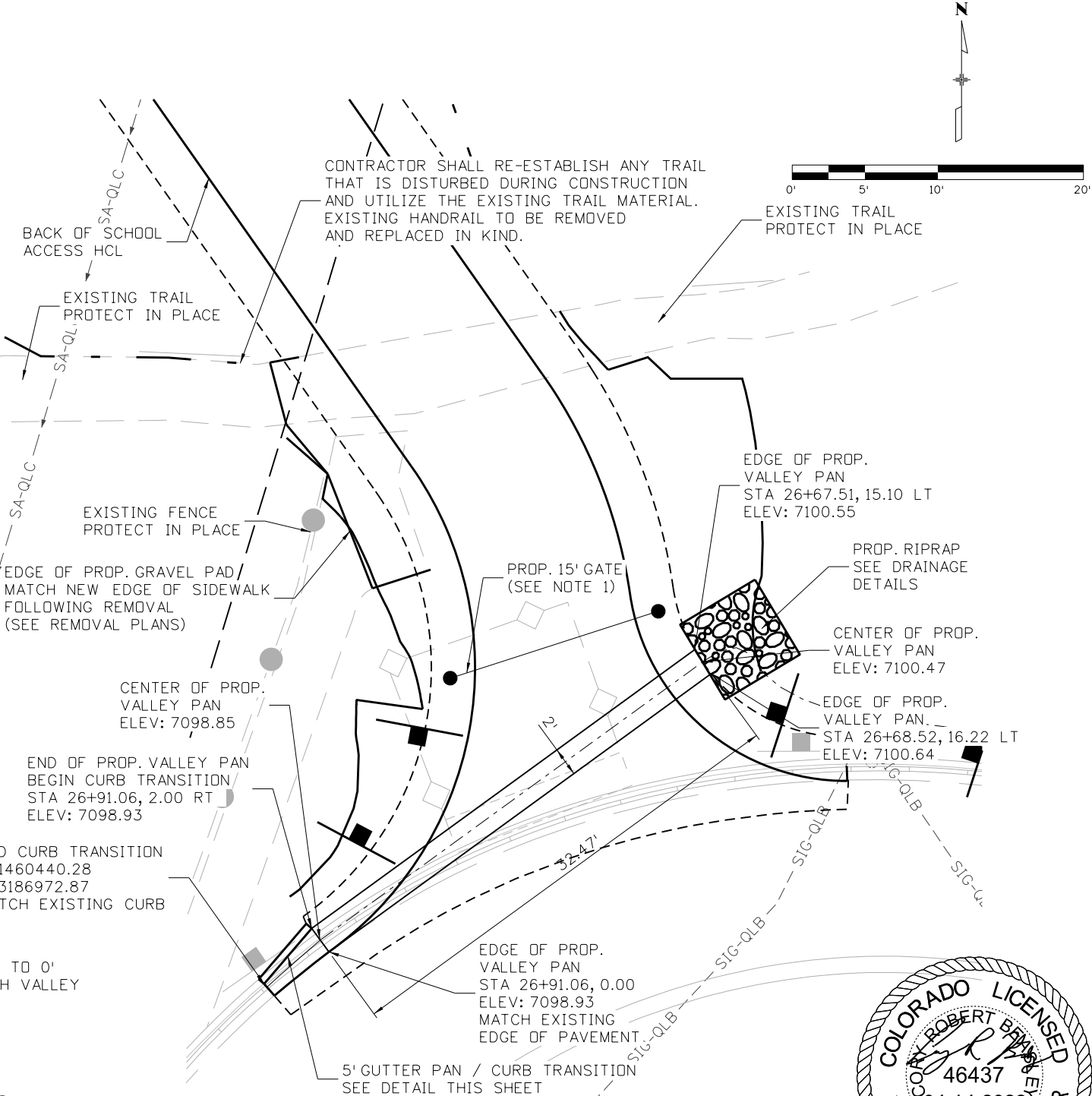
PROPOSED VALLEY PAN DETAIL



PROPOSED DETACHED SIDEWALK DETAIL



GUTTER PAN / CURB TRANSITION DETAIL



PROPOSED VALLEY PAN & TRAIL DETAIL

- NOTES:**
- SEE ROADWAY DETAIL SHEET FOR GATE DETAILS.
  - SAWCUT WILL BE PLACED 2' BEYOND LIMITS OF REMOVED C&G.
  - SEE ROADWAY DETAIL SHEET FOR VALLEY PAN DETAIL.



Print Date: 4/13/2022
File Name: SchoolRoadway Detail-01 Back Access.dgn
Horiz. Scale: 1:10 Vert. Scale: None
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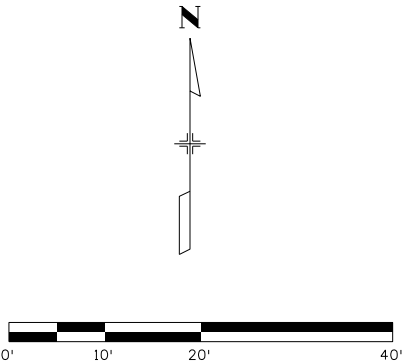
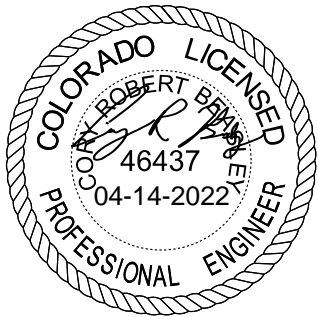
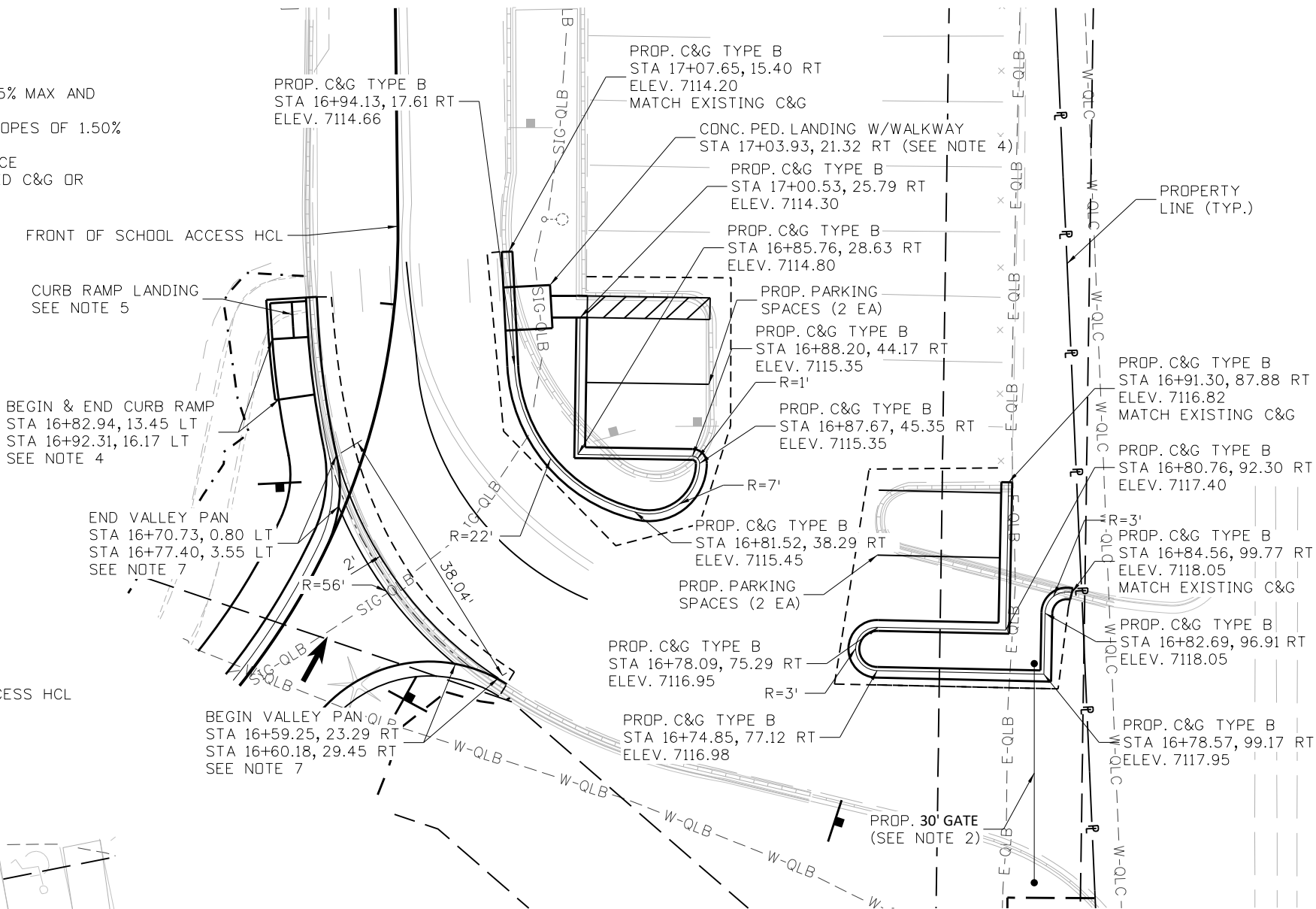
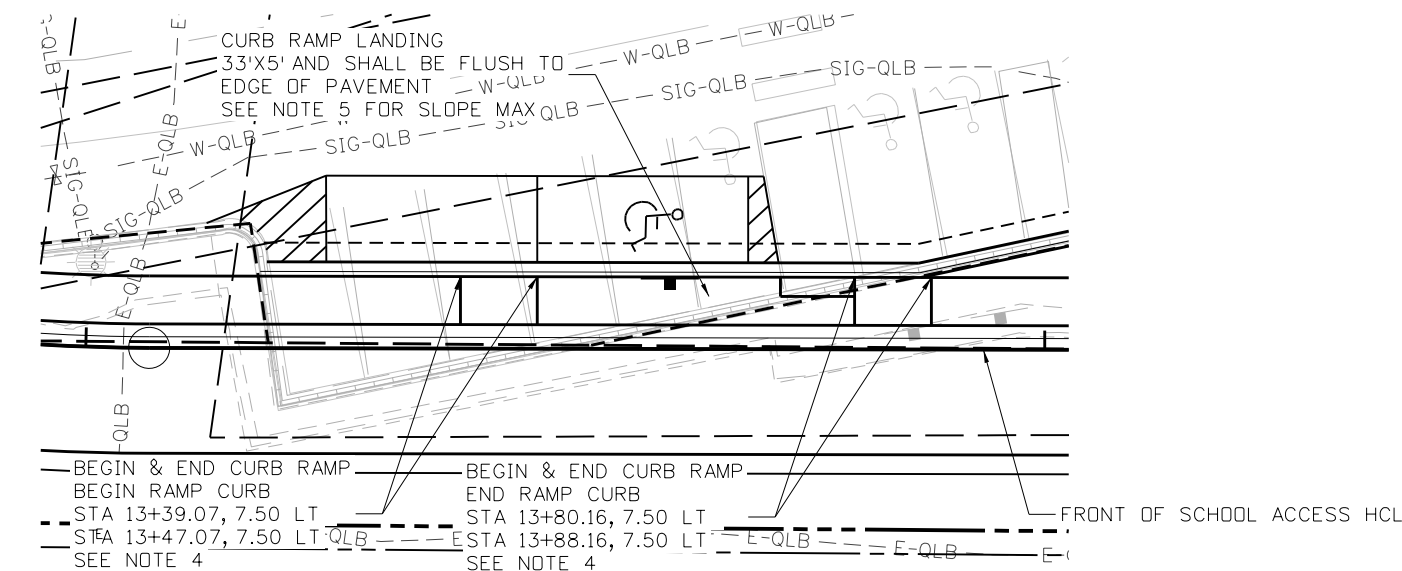
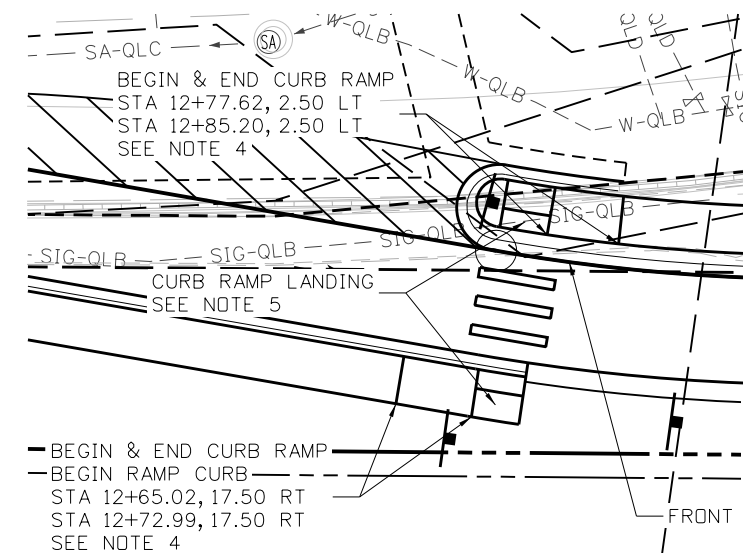


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No Revisions:		Designer: J. WILKERT	Structure Numbers		
Revised:		Detailer: J. WILKERT			
Void:		Sheet Subset: ROADWAY	Subset Sheets: 4 of 6	Sheet Number 23 of 81	





1. SEE ROADWAY DETAIL SHEET FOR C&G DETAILS.
2. SEE ROADWAY DETAIL SHEET FOR GATE DETAILS
3. SEE DRAINAGE PLANS FOR CULVERT/DRAINAGE DETAILS
4. CURB RAMP SHALL HAVE A MAX RUNNING SLOPE OF 7.5% MAX AND CROSS SLOPE OF 1.5%
5. RAMP LANDINGS ARE MINIMUM 5'X5' AND MAX CROSS SLOPES OF 1.50% IN ALL DIRECTIONS AND WILL INCLUDE A 5'X2' DETECTABLE WARNING SURFACE
6. SAWCUT WILL BE PLACED 2' BEYOND LIMITS OF REMOVED C&G OR PROPOSED C&G
7. SEE ROADWAY DETAIL SHEET FOR VALLEY PAN DETAIL

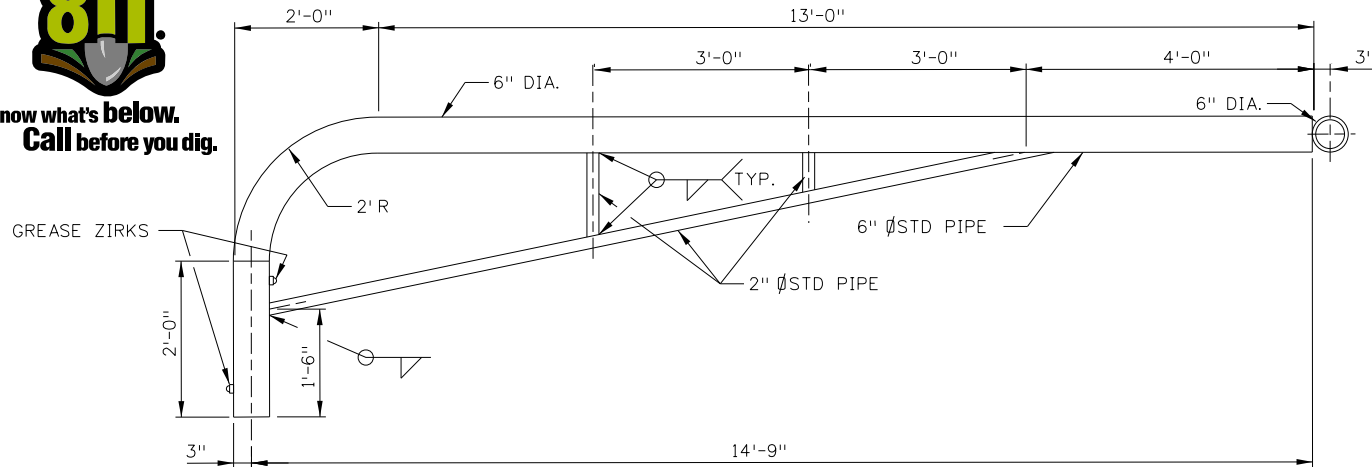


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No Revisions:				
Revised:	Designer: J. WILKERT	Structure		
	Detailer: J. WILKERT	Numbers		
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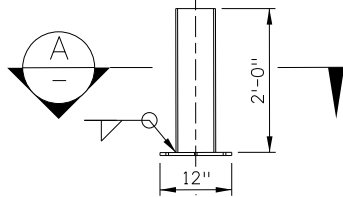




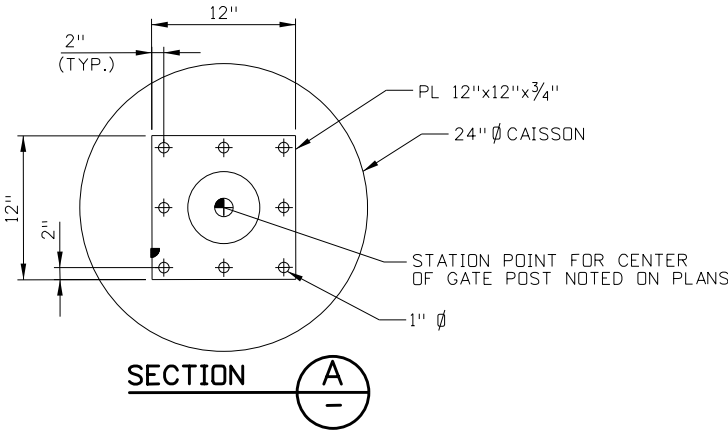
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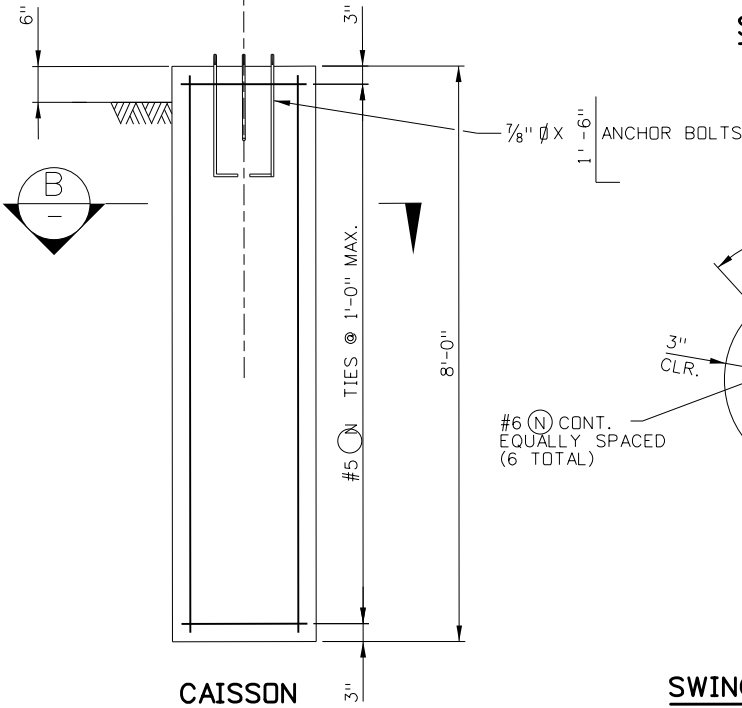
GATE ARM ELEVATION



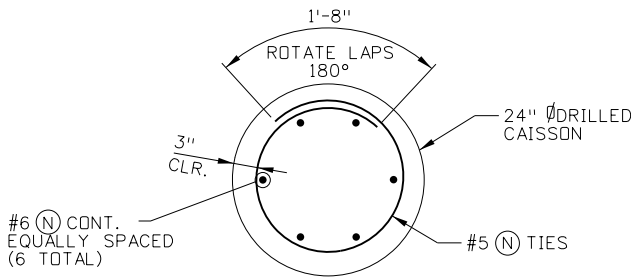
GATE SUPPORT POST DETAIL



SECTION A

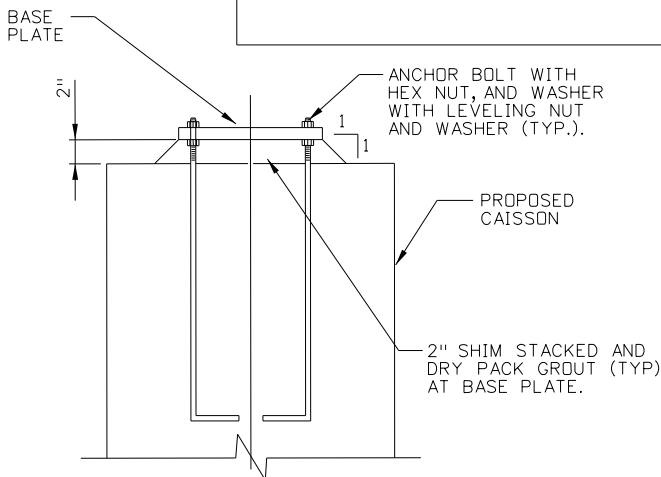


CAISSON

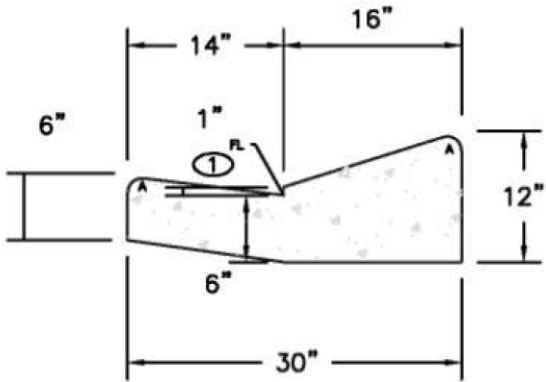


SECTION B

SWING GATE DETAILS

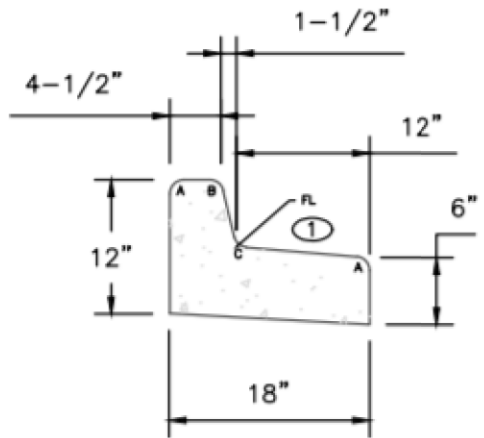


BASE PLATE GROUTING DETAIL



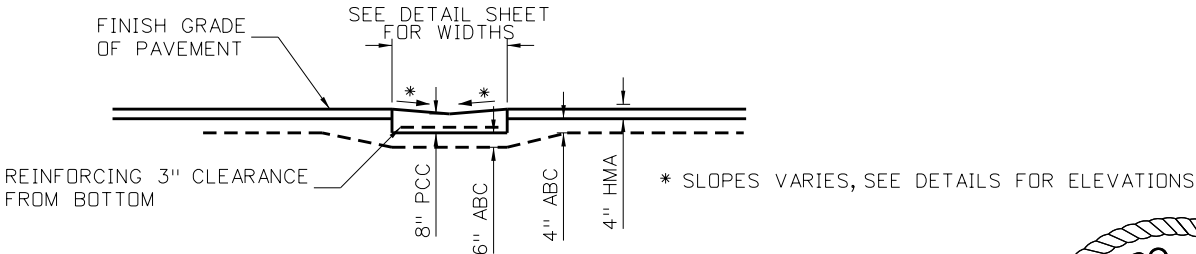
CURB & GUTTER - C&G TYPE C DETAIL

NOTE:  
C&G TYPE C (W/ 2' GUTTER) WILL MATCH C&G TYPE C ABOVE EXCEPT WITH A 24" GUTTER INSTEAD OF A 14" AS SHOWN ABOVE  
C&G TYPE C (SPEC.) WILL MATCH C&G TYPE C ABOVE EXCEPT AS A SPILL CURB



CURB & GUTTER - C&G TYPE B DETAIL

① - GUTTER CROSS SLOPES SHALL BE 1/2 IN./FT. WHEN DRAINING AWAY FROM CURB AND 1 IN./FT. WHEN DRAINING TOWARD CURB.



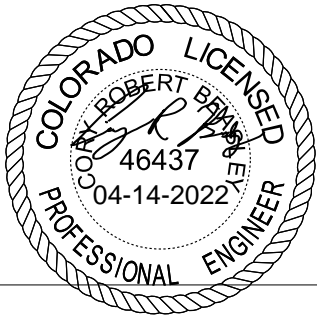
NOTES:

1. SQUARED-OFF RETURN TO BE POURED MONOLITHIC 8-INCHES P.C.C. MINIMUM WITH #4 AT 18-INCHES EACH WAY.
2. SQUARED-OFF RETURN AREAS REQUIRE REINFORCING FROM B.C.R TO E.C.R.
3. POLYURETHANE JOINT FILLER REQUIRED OVER EXPANSION JOINTS.
4. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

VALLEY PAN DETAIL

SWING GATE NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
2. CAISSON CONCRETE F'c = 4.0 KSI, REINFORCING STEEL Fy = 60 KSI.
3. THE CONTRACTOR MAY PROVIDE #5 SPIRAL REINFORCEMENT WITH A 3" PITCH FOR THE #5 CAISSON TIES SHOWN AS SUBSTITUTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ASSEMBLING AND BRACING THE REINFORCING CAGE TO SAFELY RESIST ALL LOADS IMPOSED DURING HANDLING AND CONCRETE PLACEMENT
5. CONTACT THE PROJECT MANAGER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:  
A) THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY.  
B) THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG.  
C) THE FOUNDATION SOILS ARE NOT HOMOGENOUS.  
D) FIRM BEDROCK IS ENCOUNTERED.
6. CAISSON SHALL BE PLACED AGAINST UNDISTURBED EARTH.
7. THE FOLLOWING SOIL PARAMETERS WERE USED FOR DESIGN:  
A) LOOSE GRANULAR SOIL WITH A UNIT WEIGHT OF 100 PCF AND A 28 DEGREE ANGLE OF INTERNAL FRICTION (PHI ANGLE).



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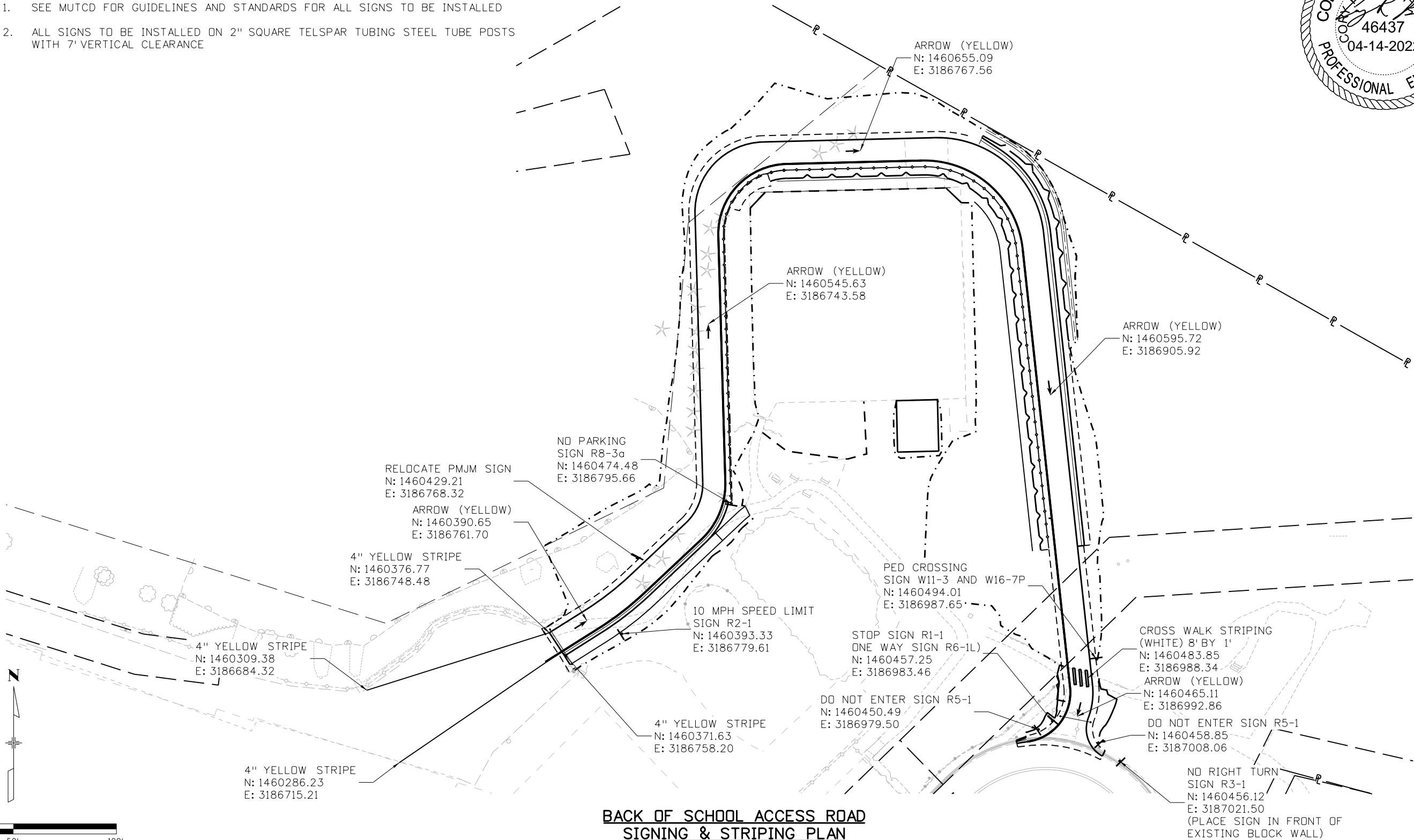
Sheet Revisions			
Date:	Comments	Init.	
	ANCHOR BOLTS		



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No Revisions:		Designer: J. WILKERT	Structure		
Revised:		Detailer: J. WILKERT	Numbers		
Void:		Sheet Subset: ROADWAY	Subset Sheets: 6 of 6	Sheet Number	25 of 81

NOTES:

1. SEE MUTCD FOR GUIDELINES AND STANDARDS FOR ALL SIGNS TO BE INSTALLED
2. ALL SIGNS TO BE INSTALLED ON 2" SQUARE TELSPAR TUBING STEEL TUBE POSTS WITH 7' VERTICAL CLEARANCE



BACK OF SCHOOL ACCESS ROAD  
SIGNING & STRIPING PLAN

Print Date: 4/13/2022

File Name: School Signing-Striping-01 Back Access.dgn

Horiz. Scale: 1:50      Vert. Scale: None



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Sheet Revisions			
Date:	Comments	Init.	

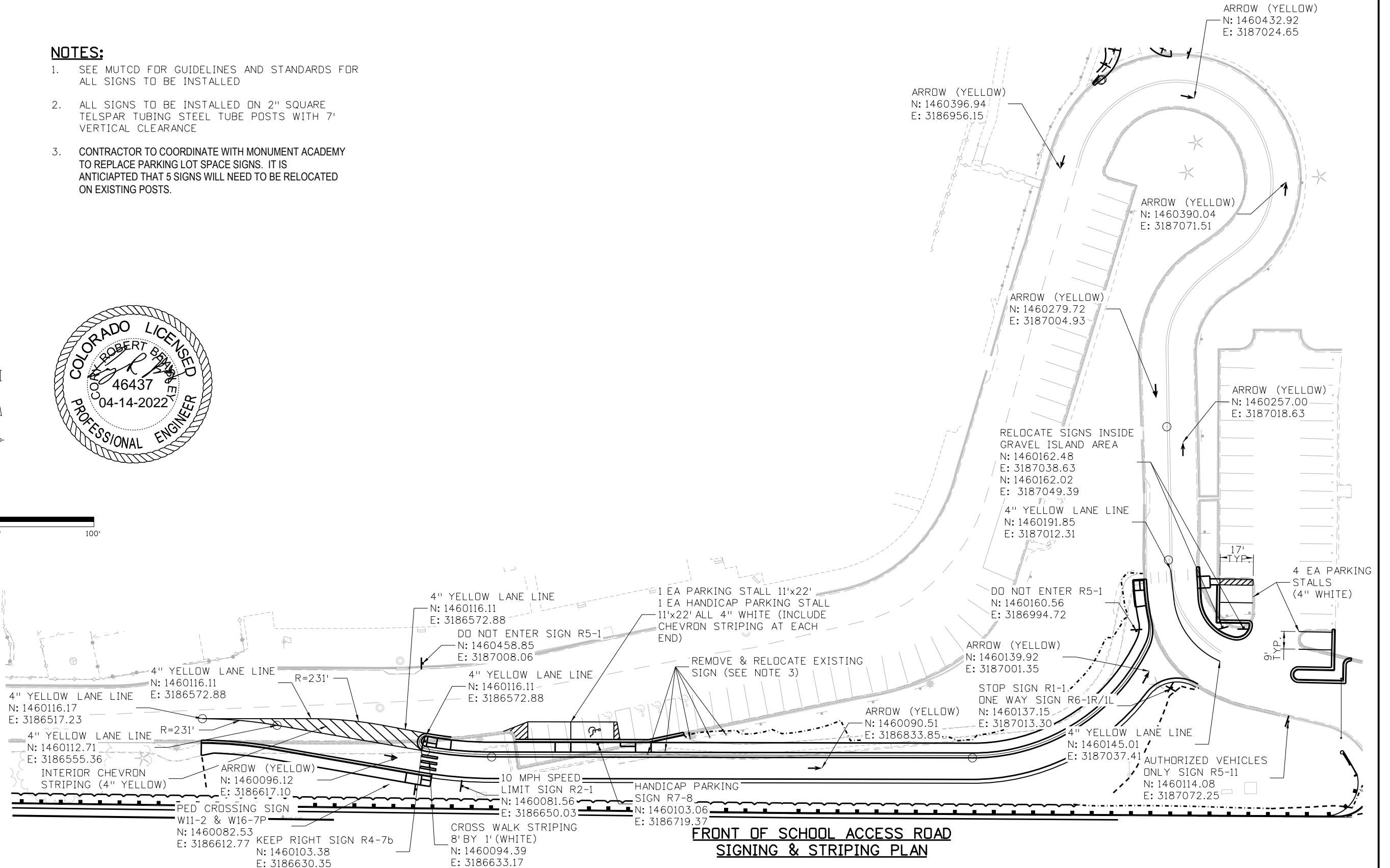
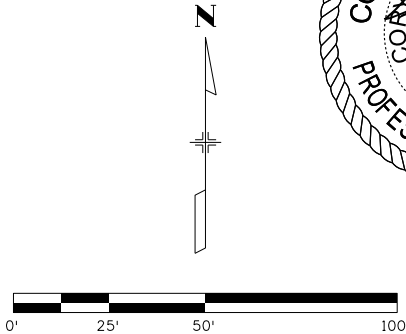


As Constructed		MONUMENT ACADEMY SIGNING AND STRIPING PLAN BACK OF SCHOOL ACCESS ROAD			Project No./Code
No Revisions:		Designer: J. SEYER	Structure		
Revised:		Detailer: C. BEASLEY	Numbers		
Void:		Sheet Subset: TRAFFIC	Subset Sheets: 1 of 2		Sheet Number 26 of 81

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**NOTES:**

1. SEE MUTCD FOR GUIDELINES AND STANDARDS FOR ALL SIGNS TO BE INSTALLED
2. ALL SIGNS TO BE INSTALLED ON 2" SQUARE TELSPAR TUBING STEEL TUBE POSTS WITH 7' VERTICAL CLEARANCE
3. CONTRACTOR TO COORDINATE WITH MONUMENT ACADEMY TO REPLACE PARKING LOT SPACE SIGNS. IT IS ANTICIPTED THAT 5 SIGNS WILL NEED TO BE RELOCATED ON EXISTING POSTS.



**FRONT OF SCHOOL ACCESS ROAD  
SIGNING & STRIPING PLAN**

Print Date: 4/13/2022
File Name: School Signing-Striping-02 Front Access.dgn
Horiz. Scale: 1:50      Vert. Scale: None
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No Revisions:		Designer: J. SEYER	Structure		
Revised:		Detailer: C. BEASLEY	Numbers		
Void:		Sheet Subset: TRAFFIC	Subset Sheets: 2 of 2		Sheet Number 27 of 81



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LEGEND:

- FLOW DIRECTION
- NATIVE GRASS SEED MIX
- WETLANDS
- NATIVE GRASS SEED MIX

NOTES:

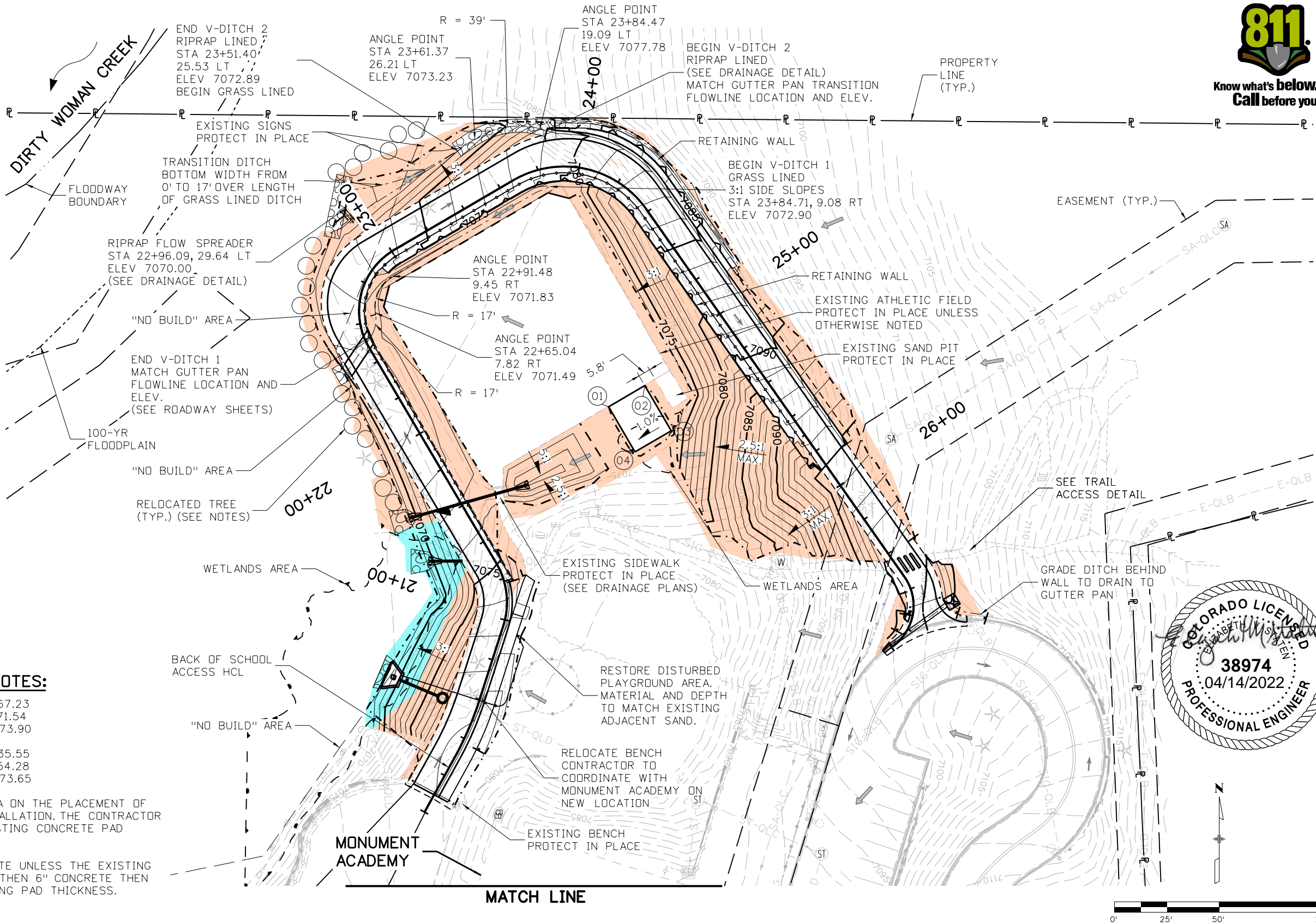
1. SEE ROADWAY AND DRAINAGE NOTES, DETAILS, PLANS, AND PROFILES FOR ADDITIONAL INFORMATION.
2. SLOPE GRADING SHALL NOT BE STEEPER THAN 3H:1V UNLESS OTHERWISE NOTED.
3. SEE SWMP AND EROSION CONTROL NOTES AND PLANS FOR SEED MIXES, SLOPE PROTECTION, AND ADDITIONAL INFORMATION.
4. DESIGNATED "NO BUILD" AREA IS ENVIRONMENTALLY SENSITIVE AND MAY BE HABITAT FOR ENDANGERED SPECIES. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. CONTRACTOR SHALL PROTECT OR RELOCATE TREES WITHIN DISTURBED AREA TO THE GENERAL AREA SHOWN. REPLANT TREES IN GROUPINGS OF 3 TO 4 TREES, AVOIDING STRAIGHT LINES AND AVOIDING EQUAL SPACING.

20'X25' POLE VAULT PAD NOTES:

- |    |   |    |   |
|----|---|----|---|
| 01 | N: 1460557.14<br>E: 3186841.66<br>ELEV: 7073.90 | 03 | N: 1460567.23<br>E: 3186871.54<br>ELEV: 7073.90 |
| 02 | N: 1460567.23<br>E: 3186858.93<br>ELEV: 7073.90 | 04 | N: 1460535.55<br>E: 3186854.28<br>ELEV: 7073.65 |

CONTRACTOR TO COORDINATE WITH MA ON THE PLACEMENT OF THE POLE VAULT PAD PRIOR TO INSTALLATION. THE CONTRACTOR DOCUMENT AND WILL MATCH THE EXISTING CONCRETE PAD DIMENSIONS AND APPURTENANCES.

POLE VAULT PAD WILL BE 6" CONCRETE UNLESS THE EXISTING PAD IS DETERMINED TO BE GREATER THEN 6" CONCRETE THEN CONTRACTOR WILL MATCH THE EXISTING PAD THICKNESS.



Print Date: 4/13/2022
File Name: SchoolSite Grading-01 Back Access
Horiz. Scale: 1:50      Vert. Scale: None
5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800

Sheet Revisions			
Date:	Comments	Init.	



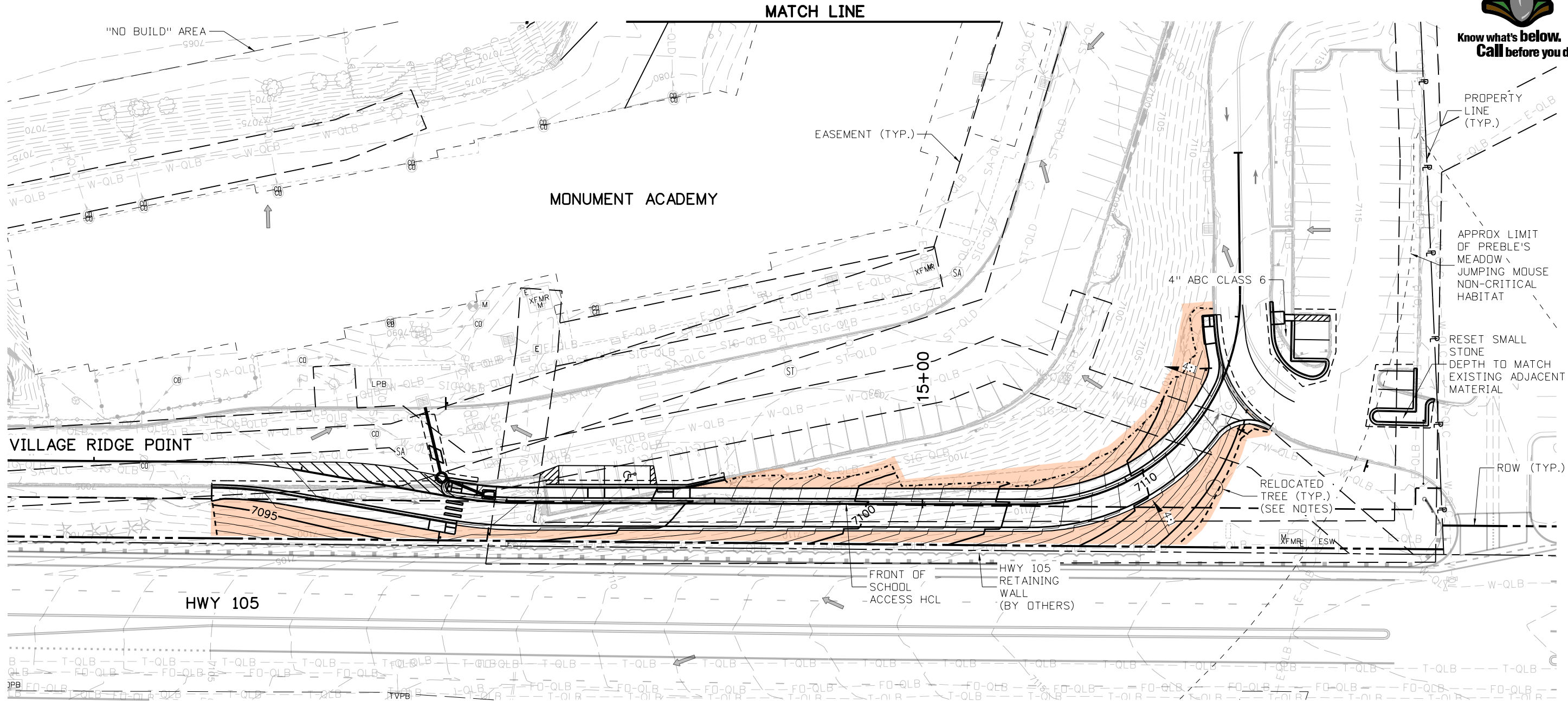
As Constructed		MONUMENT ACADEMY SITE AND GRADING PLAN BACK OF SCHOOL ACCESS ROAD		Project No./Code
No Revisions:		Designer: A.VANCE	Structure Numbers	
Revised:		Detailer: A.VANCE		
Void:		Sheet Subset: SITE	Subset Sheets: 1 of 2	Sheet Number 28 of 81



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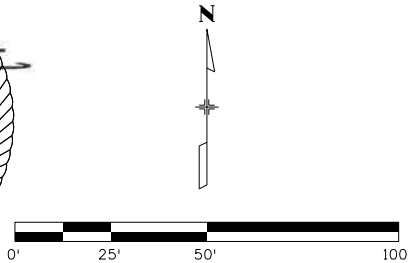


**LEGEND:**

- FLOW DIRECTION
- NATIVE GRASS SEED MIX

**NOTES:**

- SEE ROADWAY AND DRAINAGE NOTES, DETAILS, PLANS, AND PROFILES FOR ADDITIONAL INFORMATION.
- SLOPE GRADING SHALL NOT BE STEEPER THAN 3H:1V UNLESS OTHERWISE NOTED.
- SEE SWMP AND EROSION CONTROL NOTES AND PLANS FOR SEED MIXES, SLOPE PROTECTION, AND ADDITIONAL INFORMATION.
- DESIGNATED "NO BUILD" AREA IS ENVIRONMENTALLY SENSITIVE AND MAY BE HABITAT FOR ENDANGERED SPECIES. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL PROTECT OR RELOCATE TREES WITHIN DISTURBED AREA TO THE GENERAL AREA SHOWN. REPLANT TREES IN GROUPINGS OF 3 TO 4 TREES, AVOIDING STRAIGHT LINES AND AVOIDING EQUAL SPACING.



Print Date: 4/13/2022
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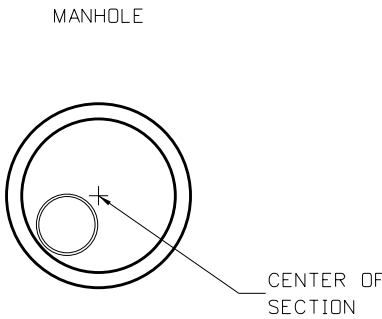
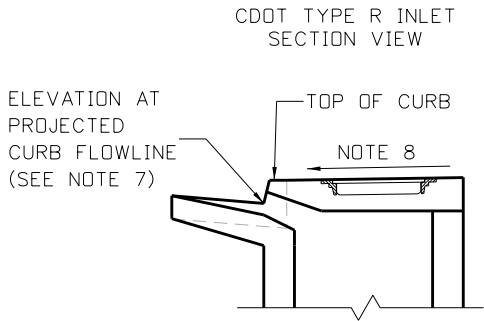
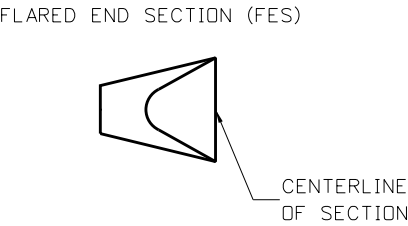
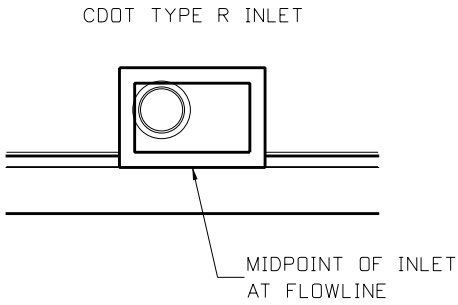
Sheet Revisions			
Date:	Comments	Init.	



As Constructed		MONUMENT ACADEMY SITE AND GRADING PLAN FRONT OF SCHOOL ACCESS ROAD				Project No./Code	
No Revisions:		Designer: A.VANCE		Structure			
Revised:		Detailer: A.VANCE		Numbers			
Void:		Sheet Subset: SITE		Subset Sheets:	2 of 2	Sheet Number 29 of 81	

GENERAL NOTES:

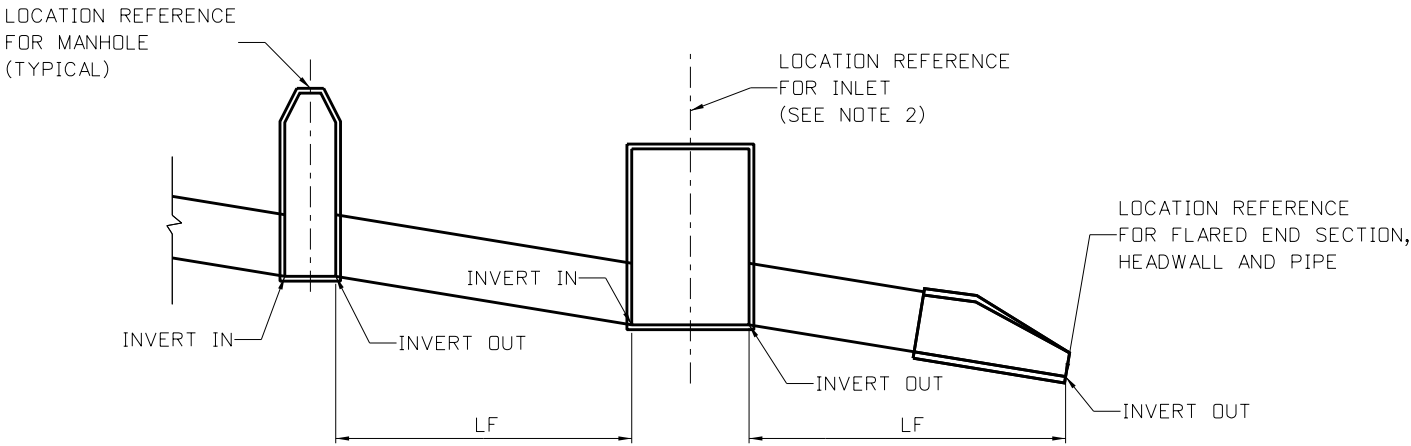
1. USE CDOT 2019 M&S STANDARDS & DETAILS WHERE APPROPRIATE.
2. INLET REFERENCE POINTS:



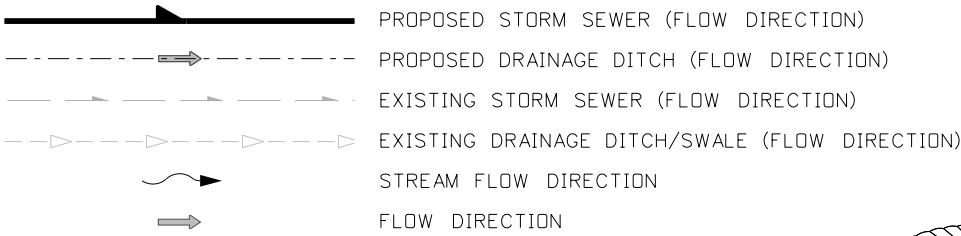
3. DISCREPANCIES FOUND BETWEEN THE PROJECT PLANS AND THE FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER.
4. THE CONTRACTOR SHALL DETERMINE THE TYPE AND LOCATION OF THE UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.
5. ADJUST MANHOLE RING AND COVERS TO MEET THE FINAL GRADE OF THE FINAL ROADWAY PER CDOT STANDARD M-604-20.
6. ALL REINFORCED CONCRETE PIPES TO BE CLASS 3 RCP UNLESS OTHERWISE NOTED IN THE PLANS.
7. HEIGHT OF TYPE R INLET IS FROM PROJECTED CURB FLOWLINE TO INVERT OUT. PROJECTED CURB FLOWLINE ELEVATION IS 6-INCHES LOWER THAN TOP OF CURB ELEVATION.
8. WHEN LOCATED IN A SIDEWALK, THE TOP SURFACE OF A TYPE R INLET SHALL MEET AND COMPLY WITH ALL ADA ACCESSIBILITY GUIDELINES FOR THE ROUTE INCLUDING BUT NOT LIMITED TO MAXIMUM SLOPE, NON-SLIP MANHOLE COVERS, AND CHANGES IN LEVEL.

DEFINITION OF PIPE LENGTH AND HORIZONTAL REFERENCE POINT

LF = LINEAR FEET



LEGEND:



Print Date: 4/13/2022

File Name: SchoolAccess HYDR\_01.dgn

Horiz. Scale: None      Vert. Scale: None

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Sheet Revisions		
Date:	Comments	Init.



As Constructed		MONUMENT ACADEMY DRAINAGE GENERAL NOTES			Project No./Code
No Revisions:					
Revised:		Designer: A.VANCE	Structure Numbers		
Void:		Detailer: A.VANCE			
		Sheet Subset: DRNG	Subset Sheets: 1 of 11	Sheet Number	30 of 81

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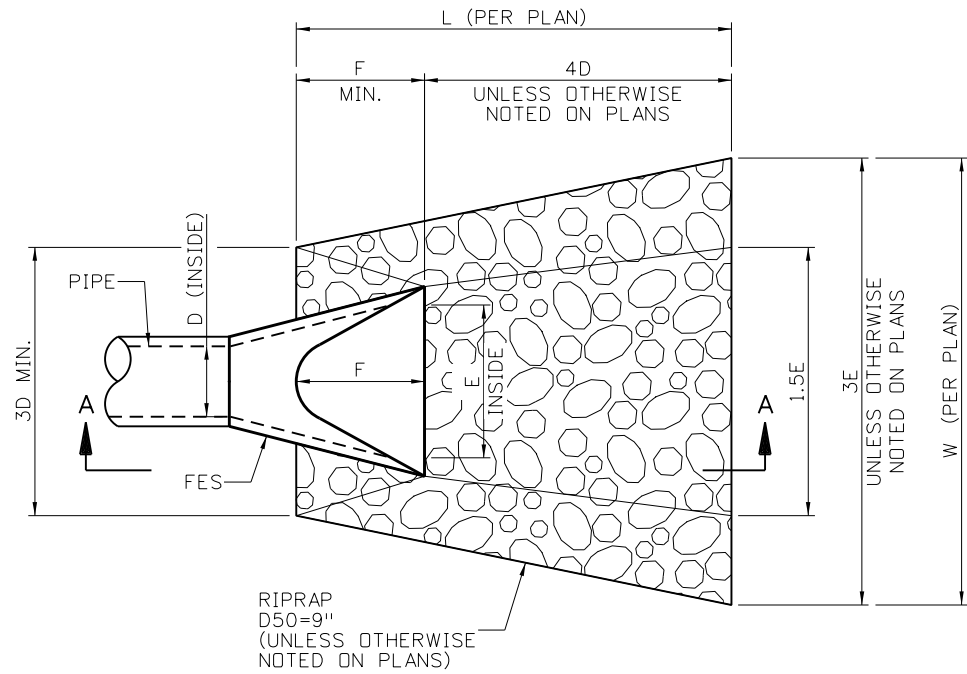
TABULATION OF DRAINAGE STRUCTURES																	
DESCRIPTION OR STATION	UPSTREAM STRUCTURE ID	PIPE ID	202-00037	420-00133	506-00209	506-00212	506-00409	601-01025	REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)		603-05018	604-19105	604-30005	604-30010	605-00060	616-30018	REMARKS
			REMOVAL OF END SECTION	GEOTEXTILE (SEPARATOR) (CLASS 2)	RIPRAP (9 INCH)	RIPRAP (12 INCH)	SOIL RIPRAP (9 INCH)	CONCRETE CLASS B (MISCELLANEOUS)	603-01185 (18 INCH)	603-01245 (24 INCH)	18 INCH REINFORCED CONCRETE END SECTION	INLET TYPE R L5 (5 FT)	MANHOLE SLAB BASE (5 FT)	MANHOLE SLAB BASE (10 FT)	6 INCH PERFORATED PIPE UNDERDRAIN	18 INCH TRASH GUARD	
			EACH	SY	CY	CY	CY	CY	LF	LF	EA	EACH	EACH	EACH	LF	EACH	
LINE 102	MH-102	P-102	1	6			3	6		21				1			CONNECT TO EXISTING PIPE
PIPE UNDERDRAIN	UD-C-1	ALL UD PIPE												79			SEE DETAIL
LINE 104	EXIST PIPE	P-104	1	7			3		16		1						CONNECT TO EXISTING PIPE
LINE 108	FES 108-IN	P-108		7	3				60		2					1	
RIPRAP V-DITCH 2	STA 23+90 LT	N/A		38		25											RIPRAP LINED DITCH NORTH OF ROAD
RIPRAP FLOW SPRDR.	V-DITCH 2	N/A		25	13									0			SEE DETAIL
RIPRAP PAD	STA 23+85 RT	N/A		6	3												RIPRAP PAD AFTER GUTTER PAN
RIPRAP PAD	STA 26+68 LT	N/A		4	2												RIPRAP PAD BEFORE GUTTER PAN
BACK OF SCHOOL SUBTOTALS			2	93	21	25	6	6	76	21	3	0	0	1	79	1	
LINE 100	IN-100	P-100							20			1					
LINE 100	MH-101	P-101						3	33				1				CONNECT TO EXISTING INLET
FRONT OF SCHOOL SUBTOTALS			0	0	0	0	0	3	53	0	0	1	1	0	0	0	
PROJECT TOTALS			2	93	21	25	6	9	129	21	3	1	1	1	79	1	



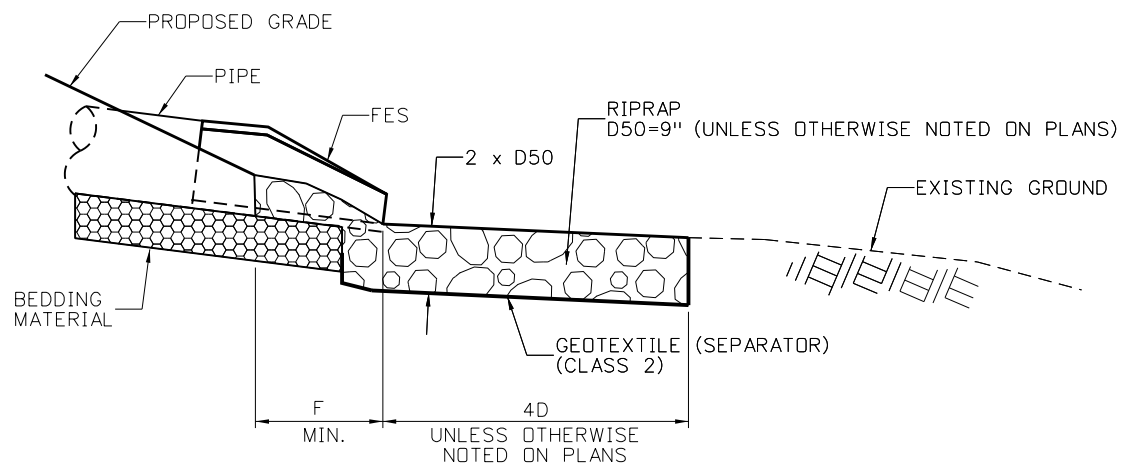
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**PLAN**  
(NOT TO SCALE)



**SECTION A-A**  
(NOT TO SCALE)

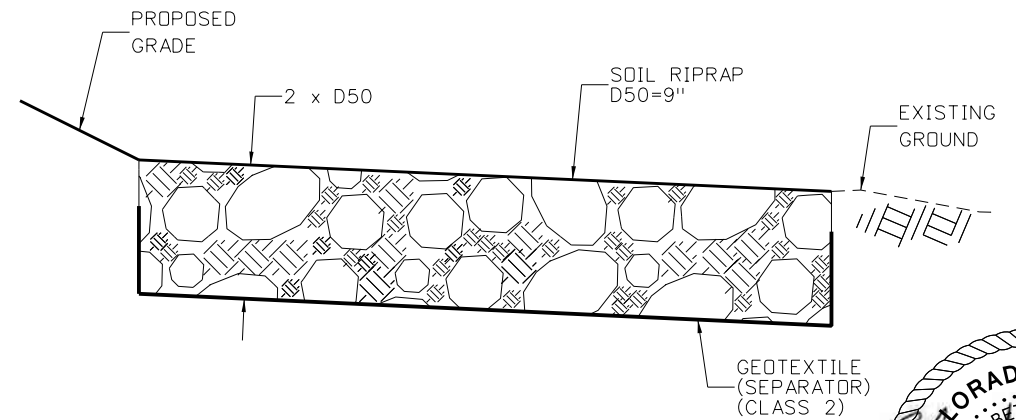
**OUTLET PAVING AT FLARED END SECTION**

**NOTES:**

1. EXCAVATION REQUIRED FOR INSTALLATION OF RIPRAP WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE RIPRAP.
2. DIMENSIONS AS PER DETAIL UNLESS OTHERWISE NOTED ON THE PLANS.

**NOTES - SOIL RIPRAP:**

1. THE SOIL MATERIAL SHALL BE NATIVE OR TOPSOIL AND MIXED WITH SIXTY-FIVE PERCENT (65%) RIPRAP AND THIRTY-FIVE PERCENT (35%) SOIL BY VOLUME.
2. SOIL RIPRAP SHALL CONSIST OF A UNIFORM MIXTURE OF SOIL AND RIPRAP WITHOUT VOIDS.
3. AFTER PLACEMENT THE SOIL SHALL BE FURTHER WETTED TO ENCOURAGE VOID FILLING WITH SOIL.
4. ANY VOIDS SHALL BE FILLED WITH ROCK OR SOIL.
5. THE FINAL SURFACE SHALL BE THOROUGHLY WETTED AND SMOOTHED OR RAKED TO RECEIVE PLANTING OR SEEDING.



**SECTION VIEW**  
(NOT TO SCALE)

**SOIL RIPRAP**



Print Date: 4/13/2022
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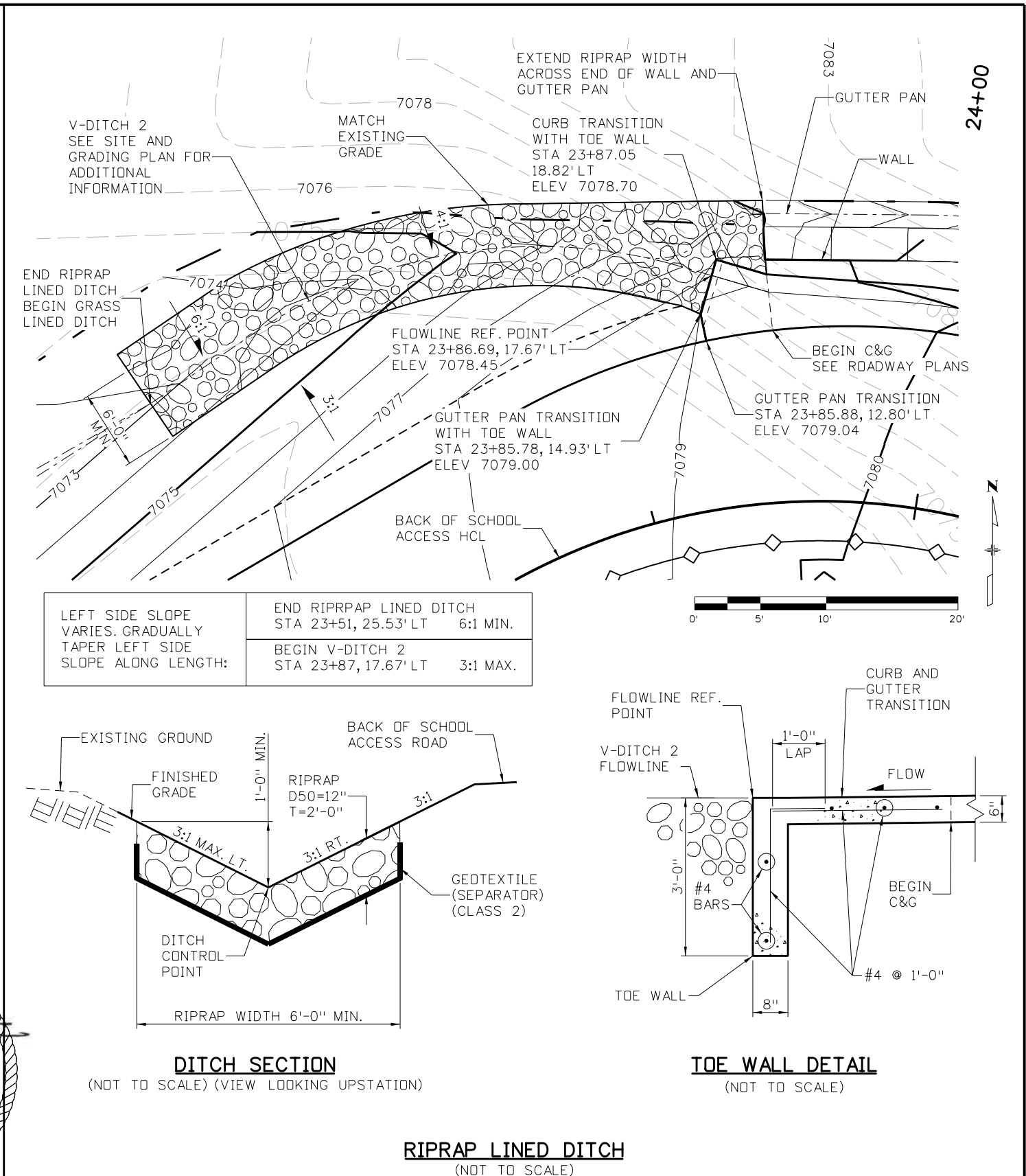
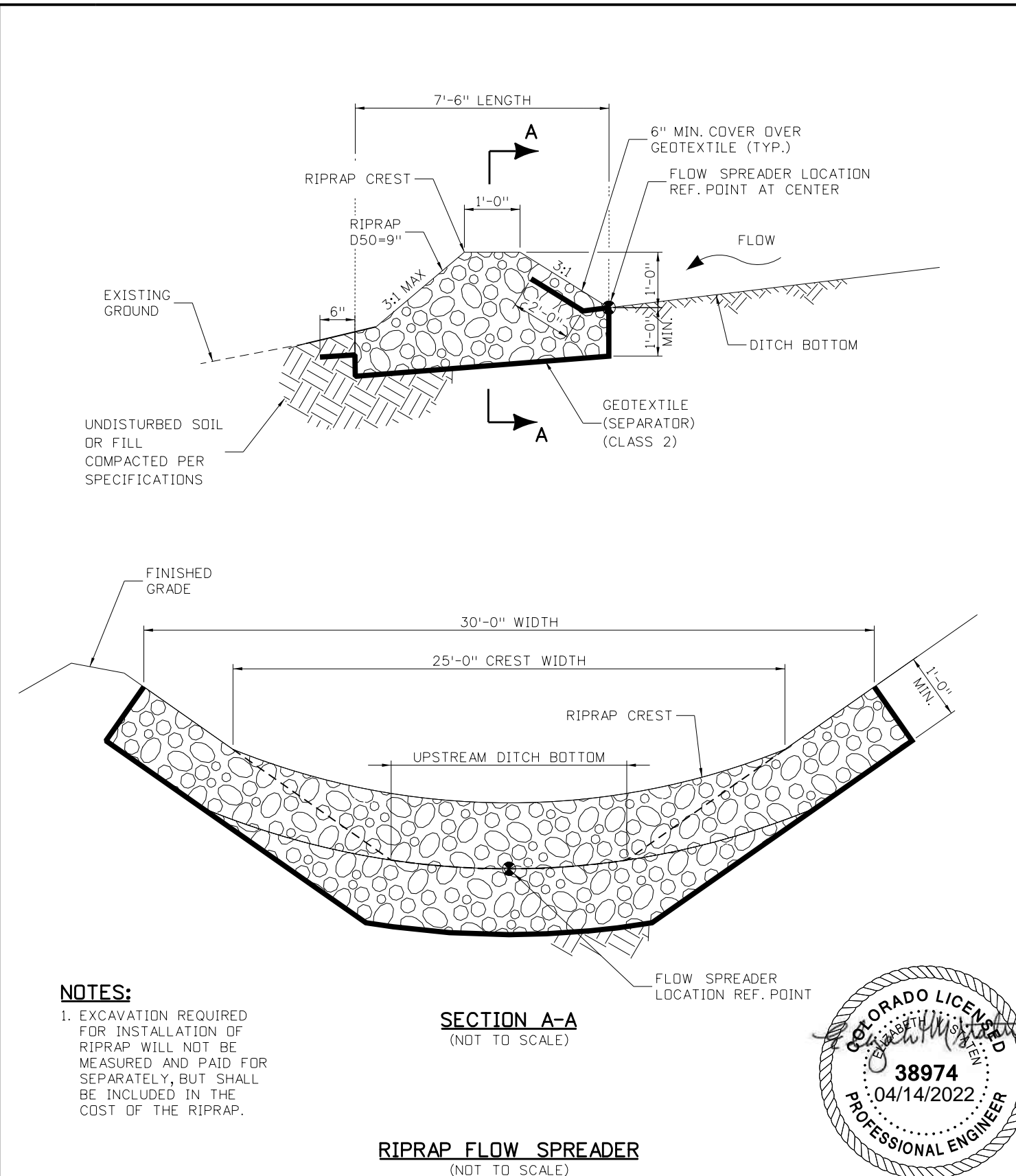
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As Constructed		MONUMENT ACADEMY DRAINAGE DETAILS			Project No./Code
No Revisions:		Designer: A.VANCE	Structure Numbers		
Revised:		Detailer: A.VANCE			
Void:		Sheet Subset: DRNG	Subset Sheets: 3 of 11	Sheet Number	32 of 81



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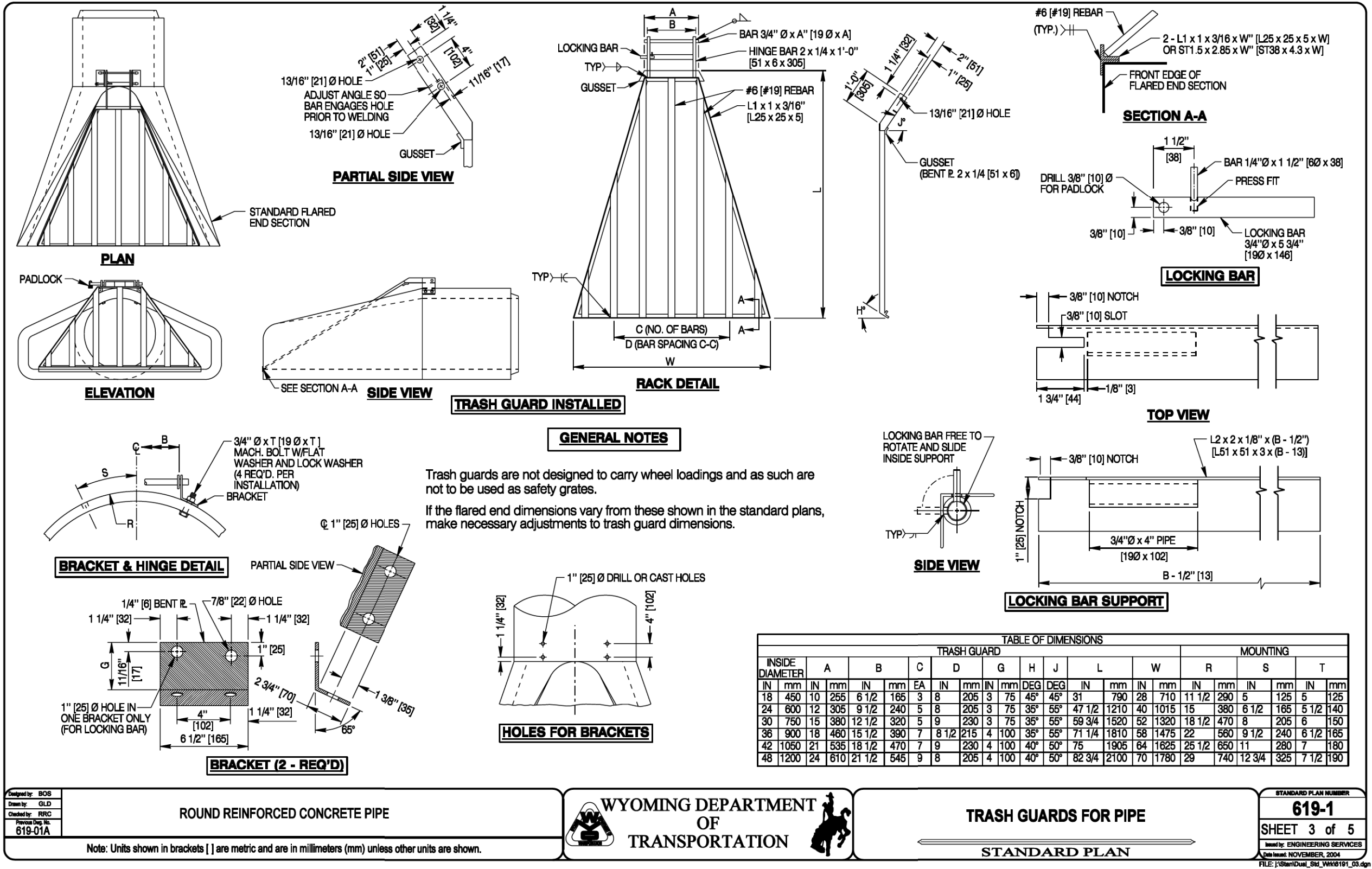


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No Revisions:
Revised:
Void:

MONUMENT ACADEMY DRAINAGE DETAILS			
Designer:	A.VANCE	Structure Numbers	
Detailer:	A.VANCE		
Sheet Subset:	DRNG	Subset Sheets:	4 of 11

Project No./Code
Sheet Number 33 of 81

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Print Date: 4/13/2022  
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Sheet Revisions			
Date:	Comments	Init.	



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**MONUMENT ACADEMY DRAINAGE DETAILS**

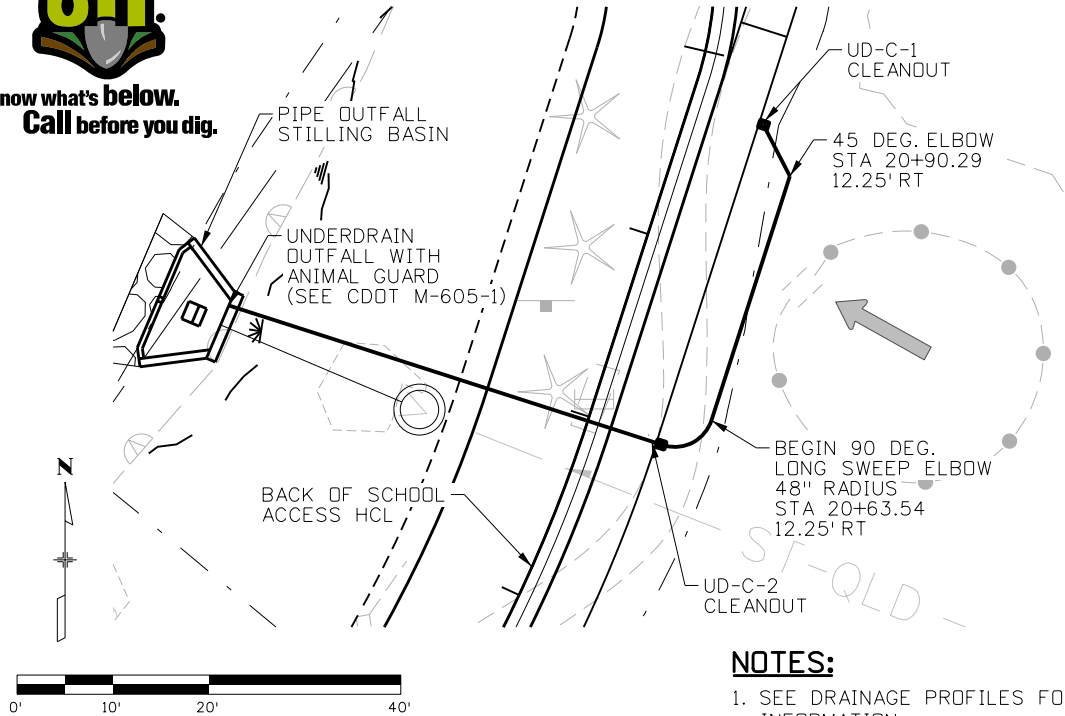
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Project No./Code  
Sheet Number 34 of 81



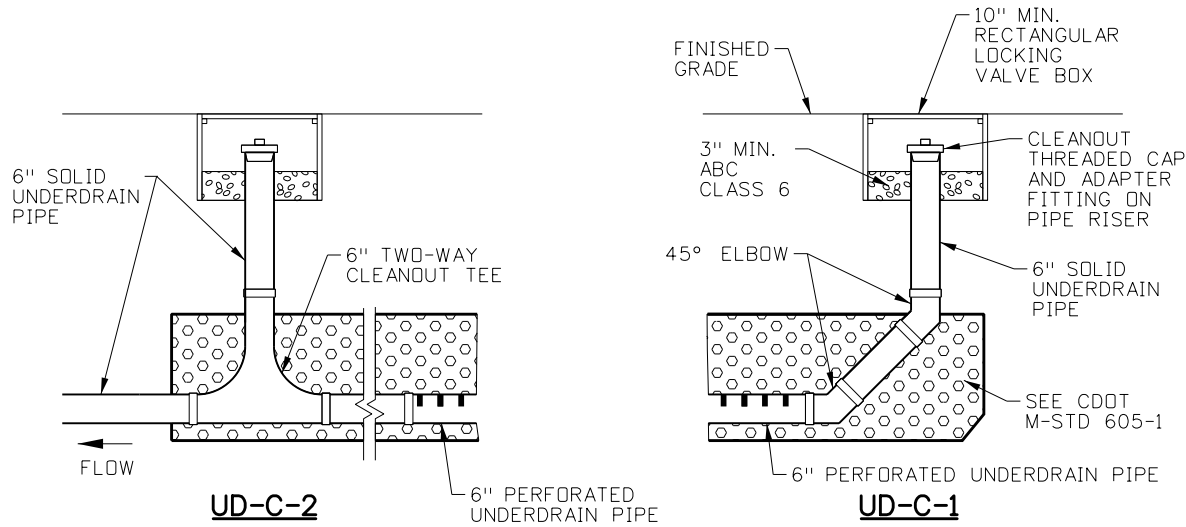
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PLAN VIEW

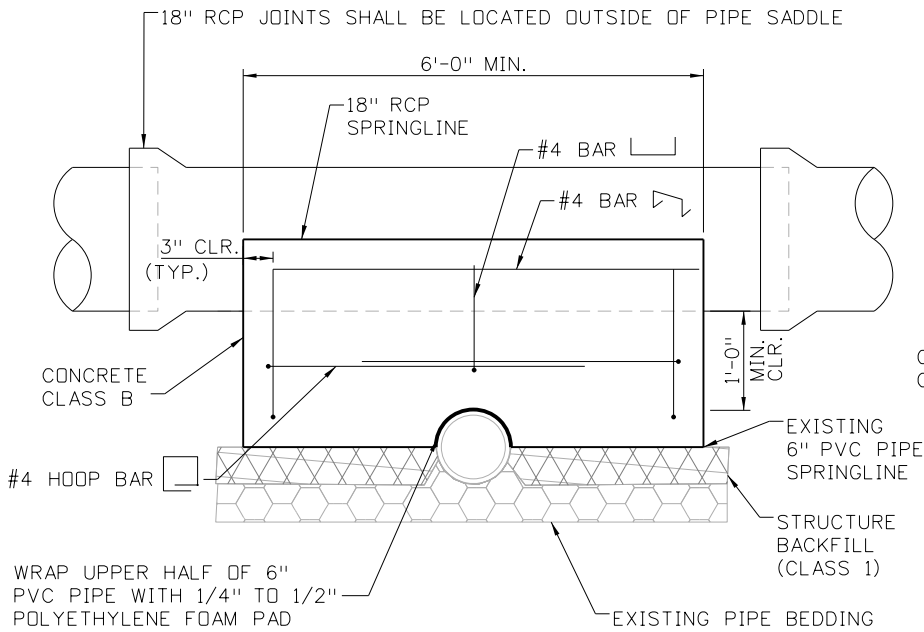
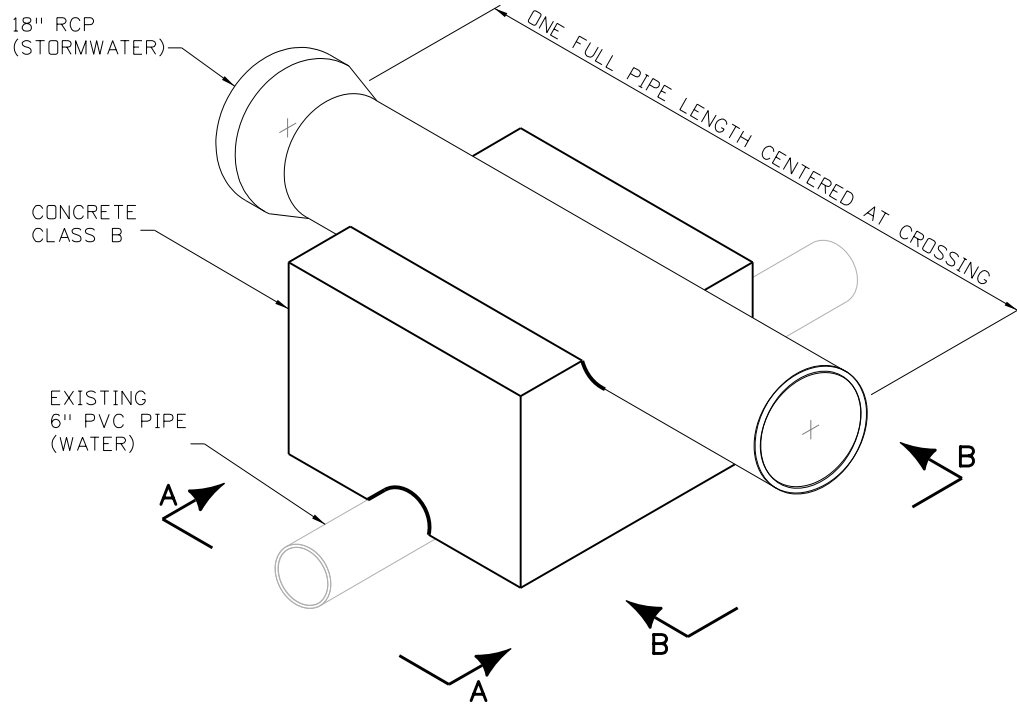
**NOTES:**

1. SEE DRAINAGE PROFILES FOR ADDITIONAL INFORMATION.
2. UNDERDRAIN CLEANOUTS, INCLUDING ALL APPURTENANCES AND INSTALLATION, SHALL BE INCLUDED WITH COST OF THE PIPE UNDERDRAIN.

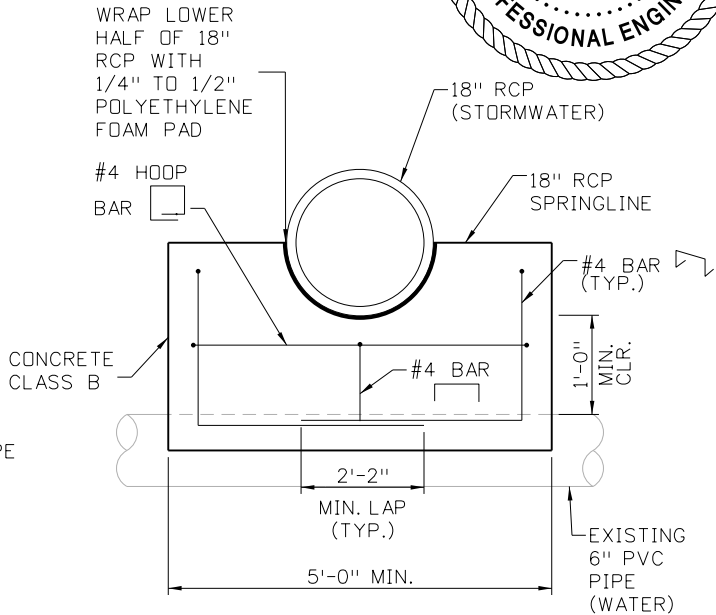


UNDERDRAIN CLEANOUT DETAILS  
NTS

PIPE UNDERDRAIN



SECTION A-A

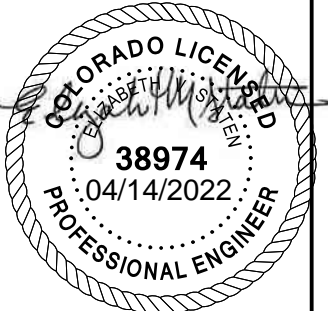


SECTION B-B

PIPE SADDLE DETAIL  
NTS

**NOTES:**

1. PIPE SADDLE LOCATION SHOWN ON DRAINAGE PROFILE SHEETS.
2. PIPE SADDLE DETAIL IS ONLY APPLICABLE FOR PROPOSED STORMWATER PIPE AND EXISTING WATER PIPE AS SHOWN.
3. CONSTRUCTION SHALL CONFORM TO CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND APPLICABLE CDOT M&S STANDARDS.
3. PIPE SADDLE INCLUDING ALL CONCRETE, REBAR, FOAM PADS, EXCAVATION, BACKFILL, AND INSTALLATION SHALL BE PAID FOR UNDER 601-01025 CONCRETE CLASS B (MISCELLANEOUS).



Print Date: 4/13/2022
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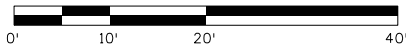
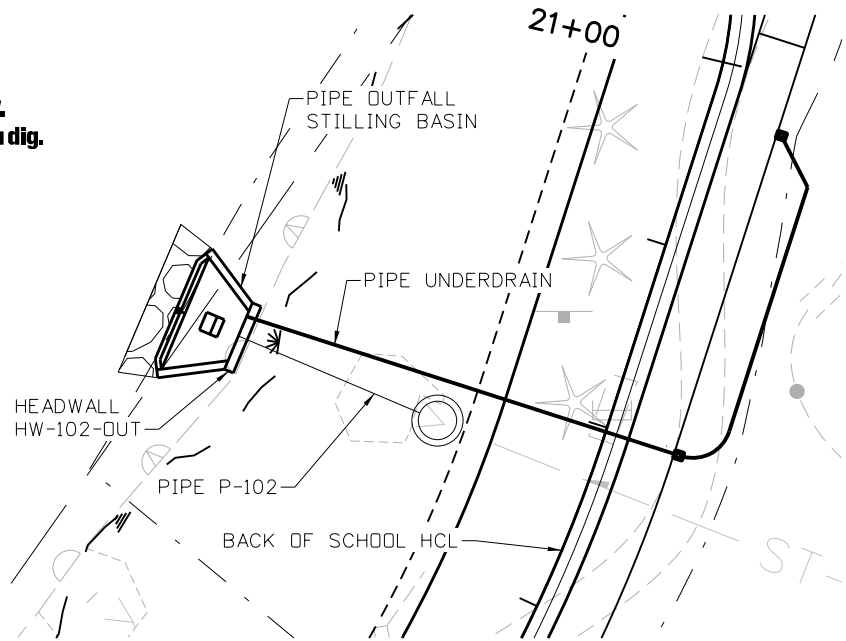


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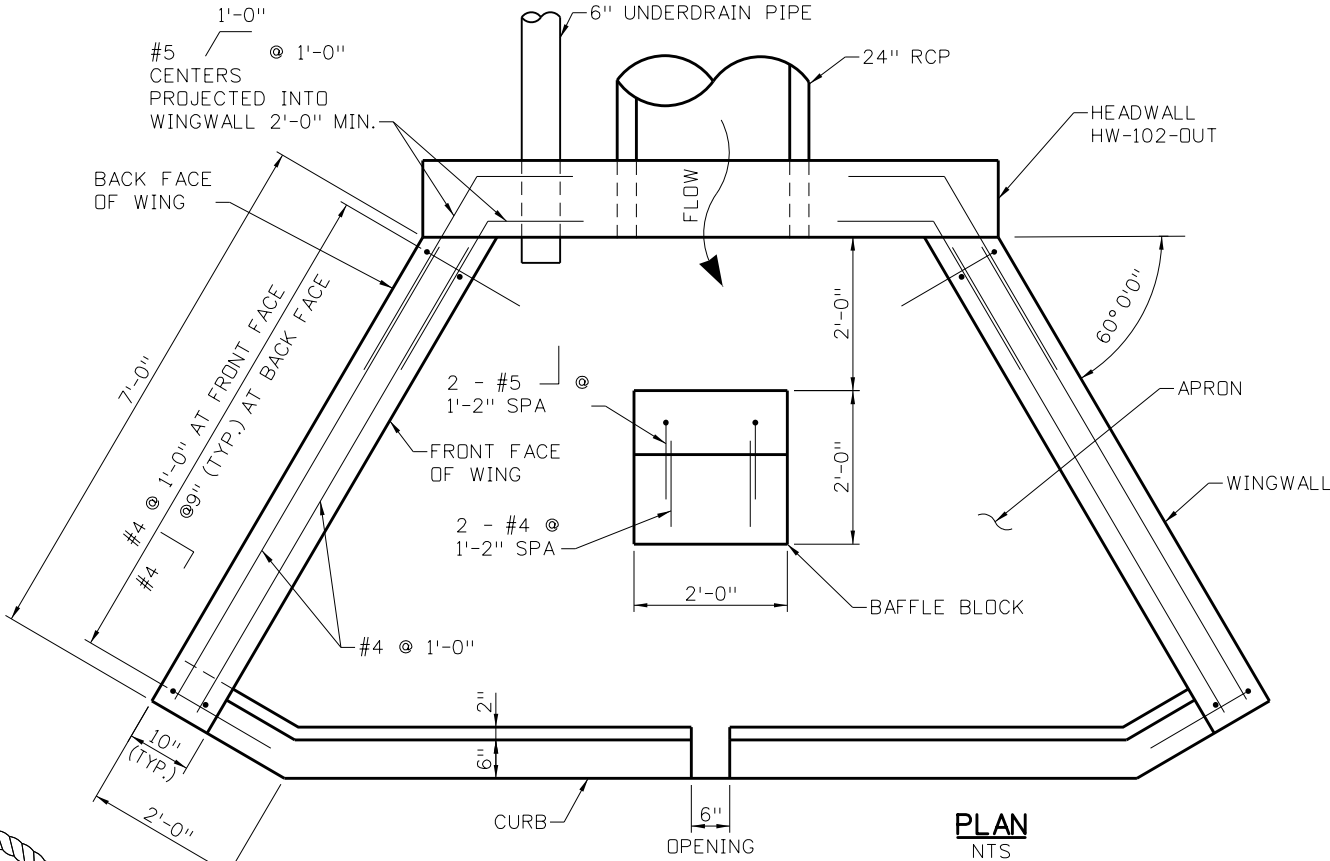


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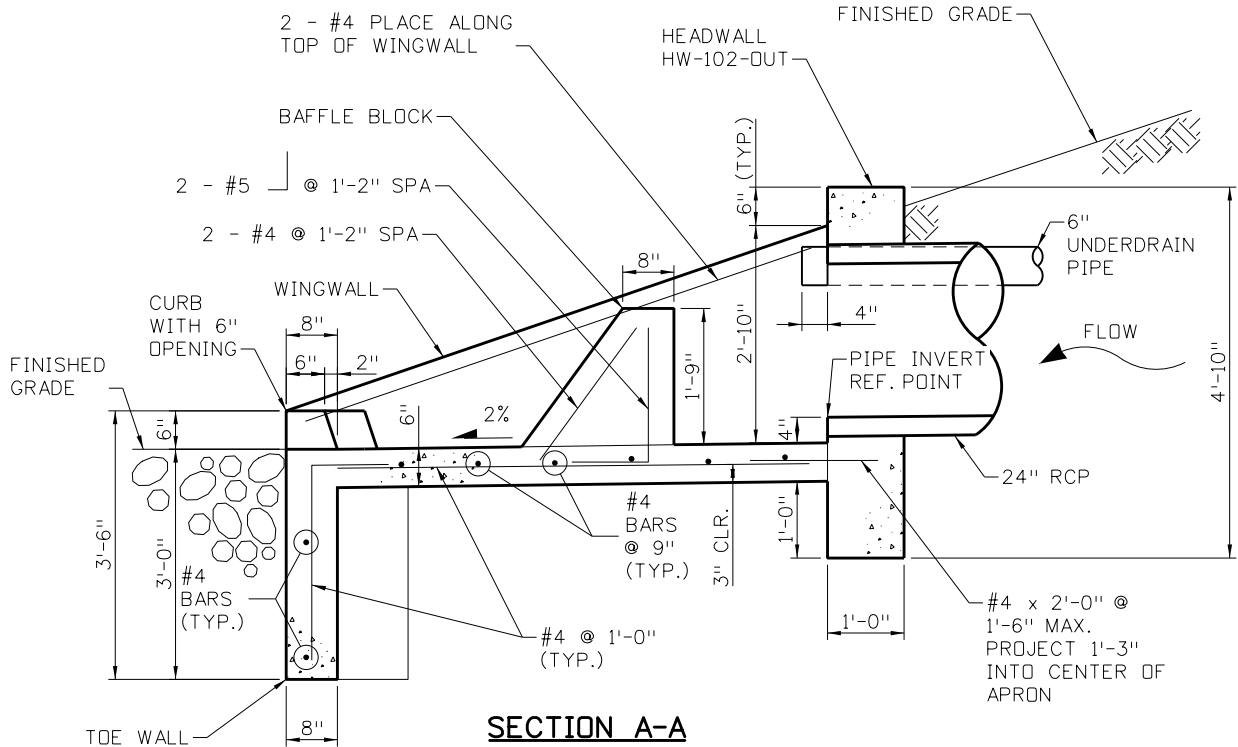
**NOTES:**

1. CONCRETE SHALL BE CLASS B.
2. HEADWALL SHALL HAVE REINFORCING STEEL INSTALLED IN A PATTERN PER CDOT STANDARD PLAN M-601-10.
3. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4-INCH.
4. ALL REINFORCING BARS SHALL HAVE A 2-INCH MINIMUM CLEARANCE UNLESS NOTED OTHERWISE.
5. PIPE OUTFALL STILLING BASIN SHALL BE PAID FOR AS CONCRETE CLASS B (MISCELLANEOUS). THE COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE WORK AND SHALL NOT BE PAID FOR SEPARATELY.



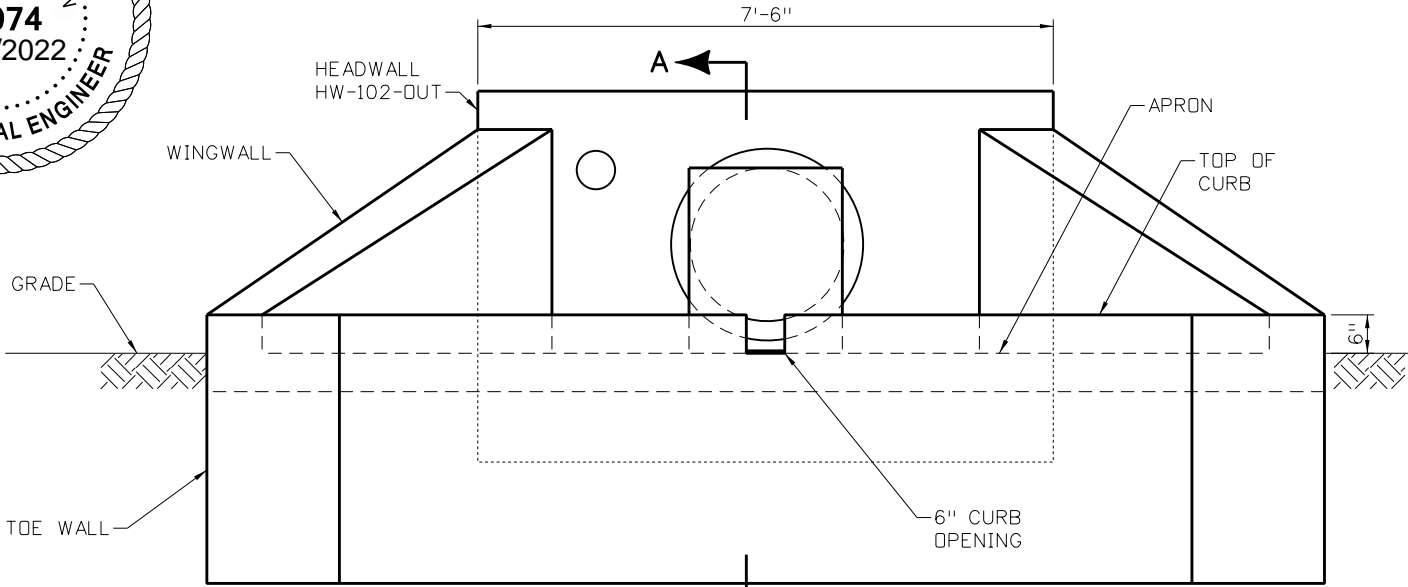
**PLAN**

NTS  
HEADWALL, APRON, AND CURB REINFORCING NOT SHOWN FOR CLARITY



**SECTION A-A**

NTS  
SEE PLAN VIEW FOR ADDITIONAL REINFORCING NOT SHOWN



**ELEVATION**

NTS  
REINFORCING NOT SHOWN FOR CLARITY

**PIPE OUTFALL STILLING BASIN**

Print Date: 4/14/2022
File Name: SchoolAccess HYDR_05A Det.dgn
Horiz. Scale: As Noted Vert. Scale: None
<b>HR</b> 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800

Sheet Revisions			
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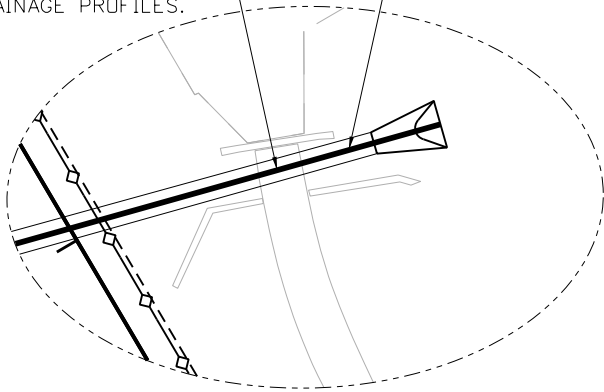
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→ FLOW DIRECTION

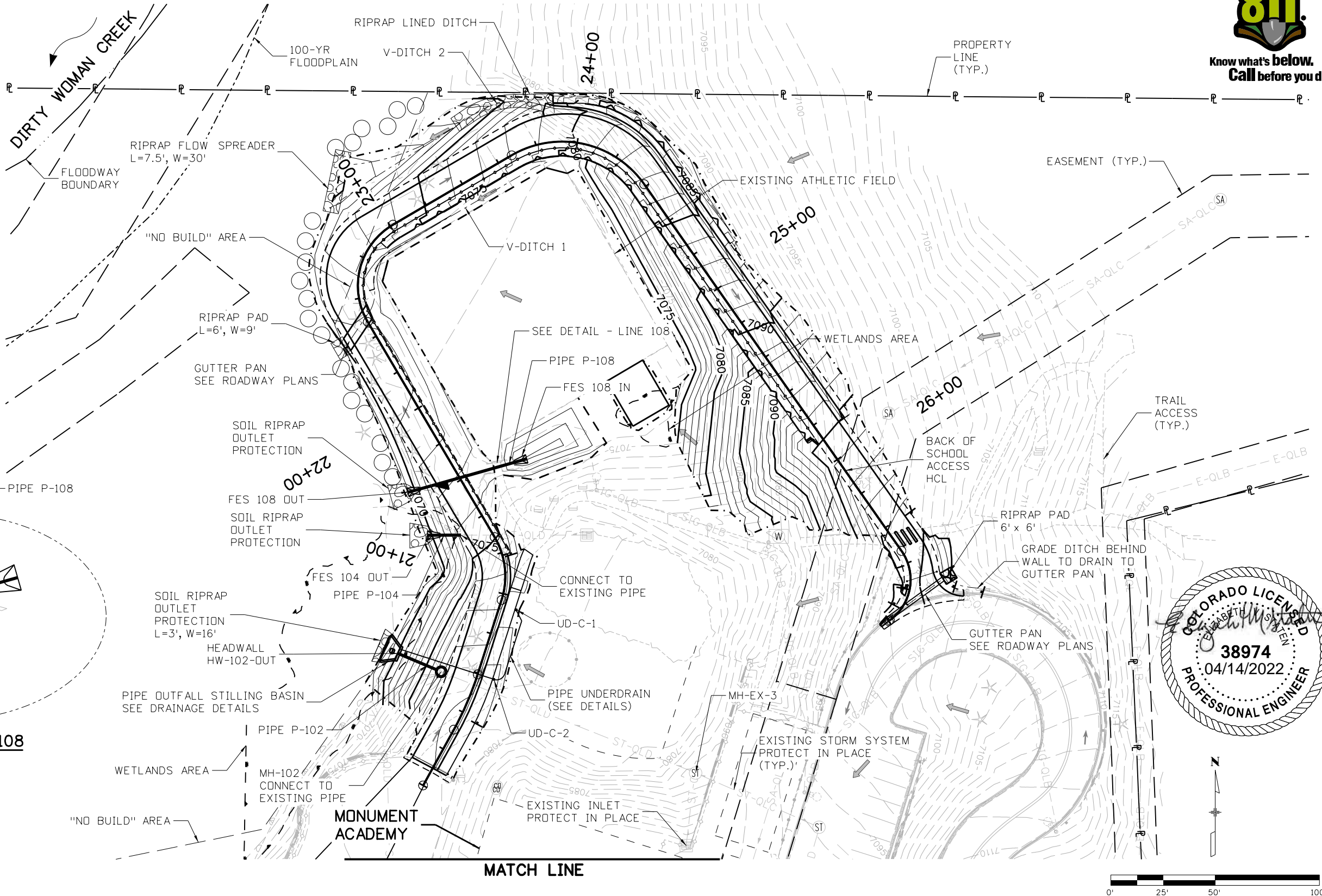
NOTES:

1. SEE DRAINAGE NOTES, DETAILS AND PROFILES FOR ADDITIONAL INFORMATION.
2. SEE SITE GRADING AND ROADWAY PLANS FOR ADDITIONAL DITCH INFORMATION.
3. ALL RIPRAP SHALL BE D50=9" WITH AN 18" MINIMUM THICKNESS UNLESS NOTED OTHERWISE.

PROPOSED PIPE P-108 IS DESIGNED TO FIT BETWEEN EXISTING WINGWALLS WITHOUT DISTURBING SIDEWALK. SEE DRAINAGE PROFILES.

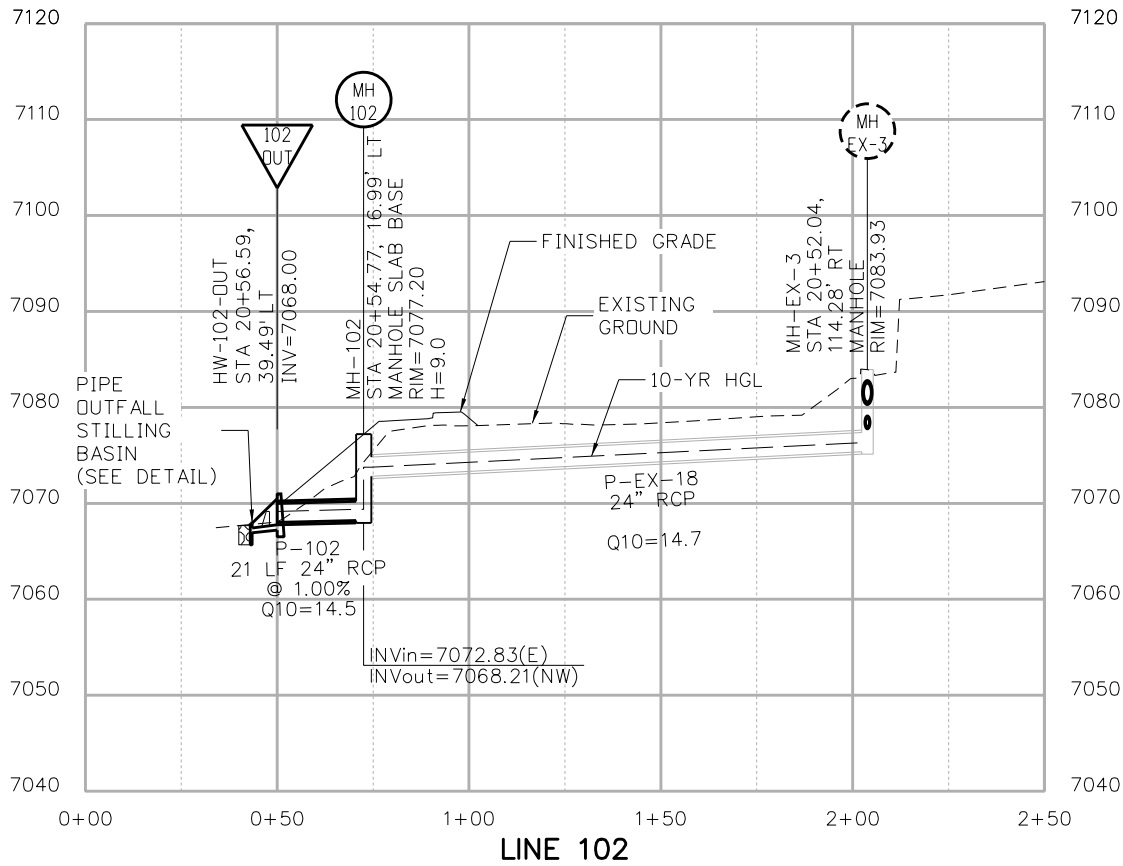


DETAIL - LINE 108

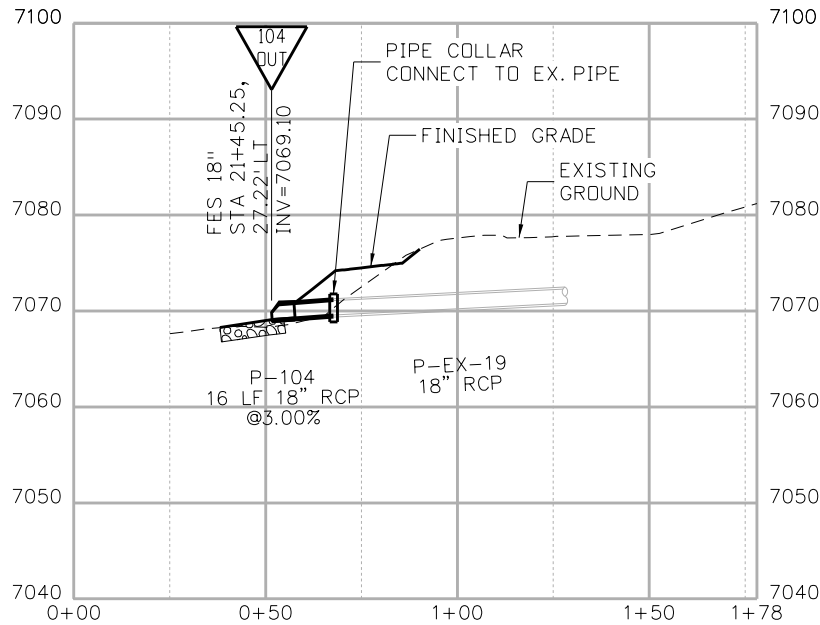


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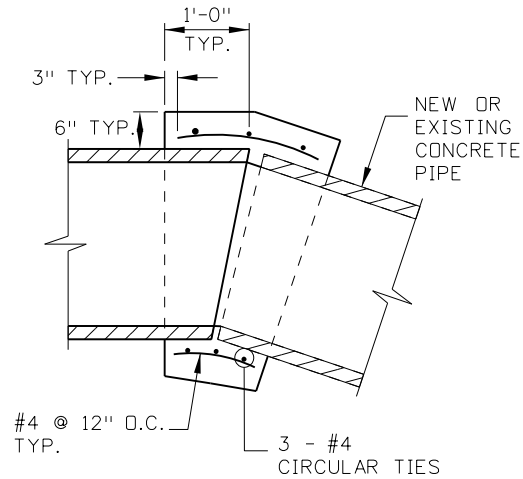
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LINE 102



LINE 104

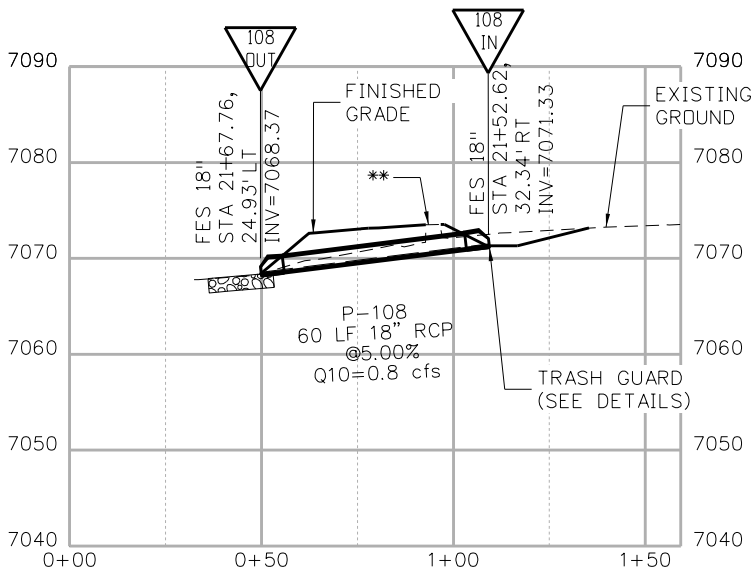


**NOTES:**

1. CONCRETE SHALL BE CDOT CLASS B.
2. CONCRETE PIPE COLLARS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
3. THE INTERIOR SURFACE OF THE CONCRETE COLLAR SHALL BE FINISHED SMOOTH TO MATCH THE ADJOINING PIPE SURFACES.

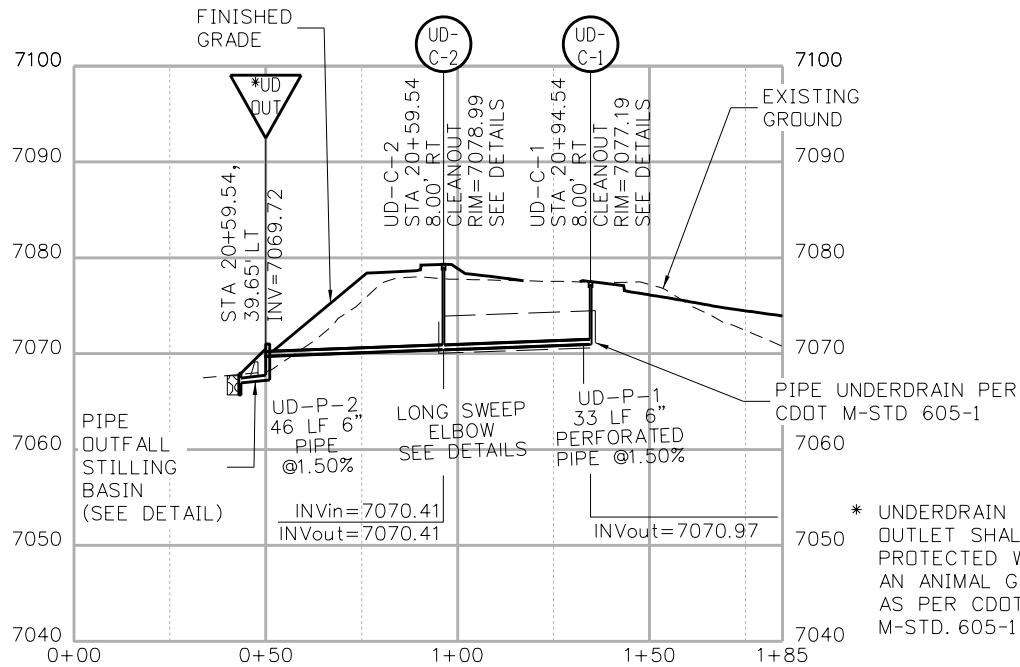
**CONCRETE PIPE COLLAR**

N.T.S.



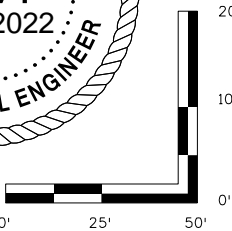
LINE 108

\*\* ANNULAR SPACE BETWEEN PIPE AND EXISTING CULVERT UNDER SIDEWALK SHALL BE BACKFILLED WITH STRUCTURE BACKFILL (FLOW-FILL) MATERIAL AS PER CDOT SPECIFICATIONS.



PIPE UNDERDRAIN

\* UNDERDRAIN PIPE OUTLET SHALL BE PROTECTED WITH AN ANIMAL GUARD AS PER CDOT M-STD. 605-1



Print Date: 4/13/2022
File Name: SchoolAccess HYDR_07 PnP.dgn
Horiz. Scale: 1:50 Vert. Scale: 20:1
<b>HDR</b> 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800

Sheet Revisions			
Date:	Comments	Init.	

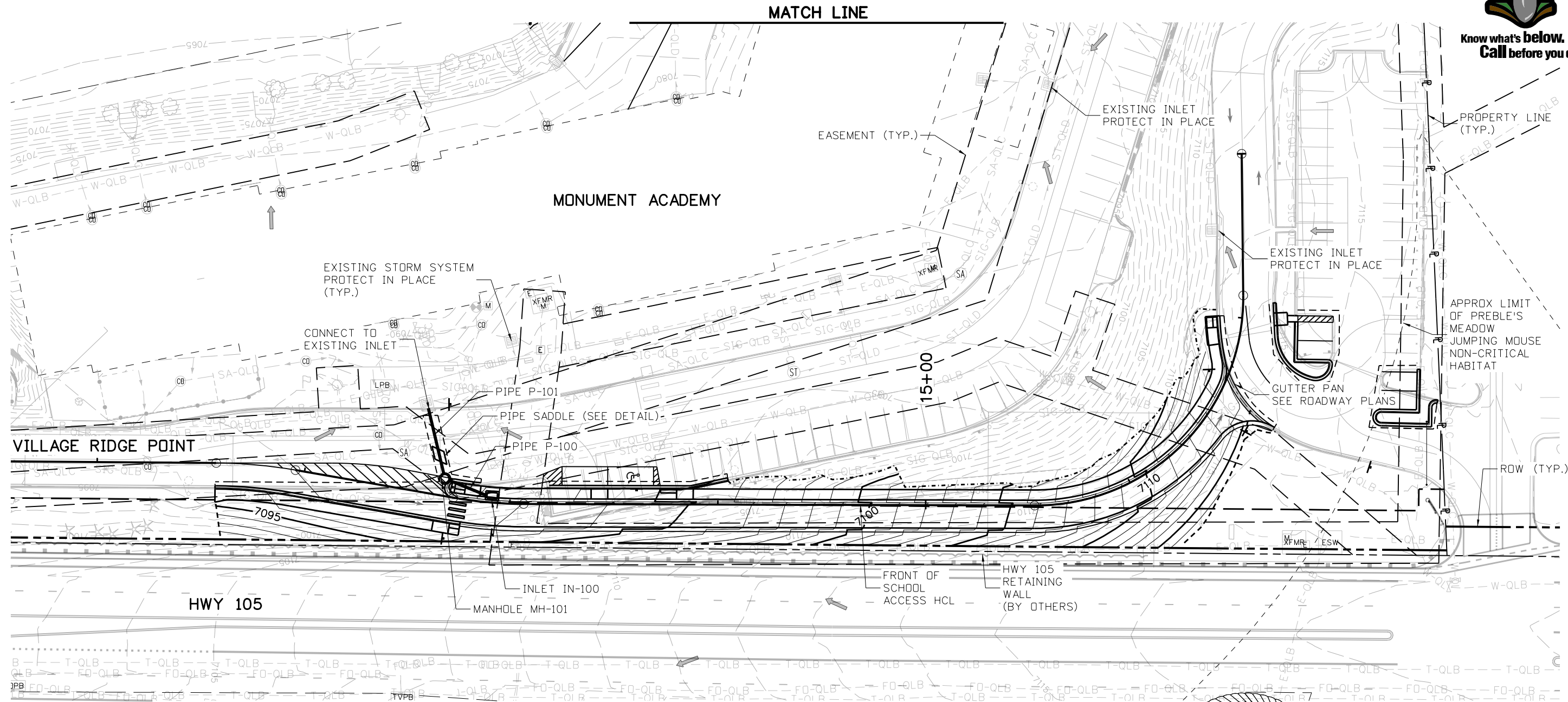


As Constructed		MONUMENT ACADEMY DRAINAGE PROFILES BACK OF SCHOOL		Project No./Code
No Revisions:		Designer: A.VANCE	Structure Numbers	
Revised:		Detailer: A.VANCE		
Void:		Sheet Subset: DRNG	Subset Sheets: 9 of 11	Sheet Number 38 of 81





Know what's below.  
Call before you dig.

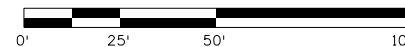


**LEGEND:**

→ FLOW DIRECTION

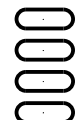
**NOTES:**

1. SEE DRAINAGE NOTES, DETAILS AND PROFILES FOR ADDITIONAL INFORMATION.
2. SEE SITE GRADING AND ROADWAY PLANS FOR ADDITIONAL DITCH INFORMATION.
3. ALL RIPRAP SHALL BE D50=9" WITH AN 18" MINIMUM THICKNESS UNLESS NOTED OTHERWISE.



Print Date: 4/13/2022  
File Name: SchoolAccess HYDR\_08 PnP.dgn  
Horiz. Scale: 1:50 Vert. Scale: None

**HR** 5555 TECH CENTER DRIVE, SUITE 310  
COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800



**Sheet Revisions**

Date:	Comments	Init.



**As Constructed**

No Revisions:

Revised:

Void:

**MONUMENT ACADEMY  
DRAINAGE PLAN  
FRONT OF SCHOOL**

Designer:	A.VANCE	Structure	
Detailer:	A.VANCE	Numbers	
Sheet Subset:	DRNG	Subset Sheets:	10 of 11

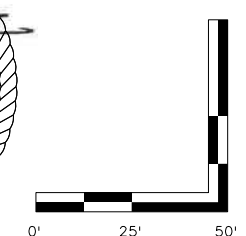
**Project No./Code**

Sheet Number 39 of 81





1. SEE DRAINAGE DETAILS FOR ADDITIONAL INFORMATION.



Print Date: 4/13/2022		<div>0000</div>	Sheet Revisions				As Constructed		MONUMENT ACADEMY DRAINAGE PROFILES FRONT OF SCHOOL			Project No./Code		
File Name: SchoolAccess HYDR_09 PnP.dgn			Date:	Comments	Init.		No Revisions:							
Horiz. Scale: 1:50                      Vert. Scale: 20:1							Revised:		Designer:	A. VANCE	Structure			
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800							Void:		Detailer:	A. VANCE	Numbers			
									Sheet Subset:	DRNG	Subset Sheets:	11 of 11	Sheet Number 40 of 81	

GENERAL NOTES

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND AS NOTED IN THESE PLANS.

UTILITIES ARE DEPICTED ON THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED "QUALITY LEVEL" AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEER'S DOCUMENT ASCE 38, "STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". RELIANCE UPON THIS DATA FOR RISK MANAGEMENT PURPOSES DURING BIDDING DOES NOT RELIEVE THE EXCAVATOR OR UTILITY OWNER FROM FOLLOWING ALL APPLICABLE UTILITY DAMAGE PREVENTION STATUTES, POLICIES, AND/OR PROCEDURES DURING EXCAVATION.

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.

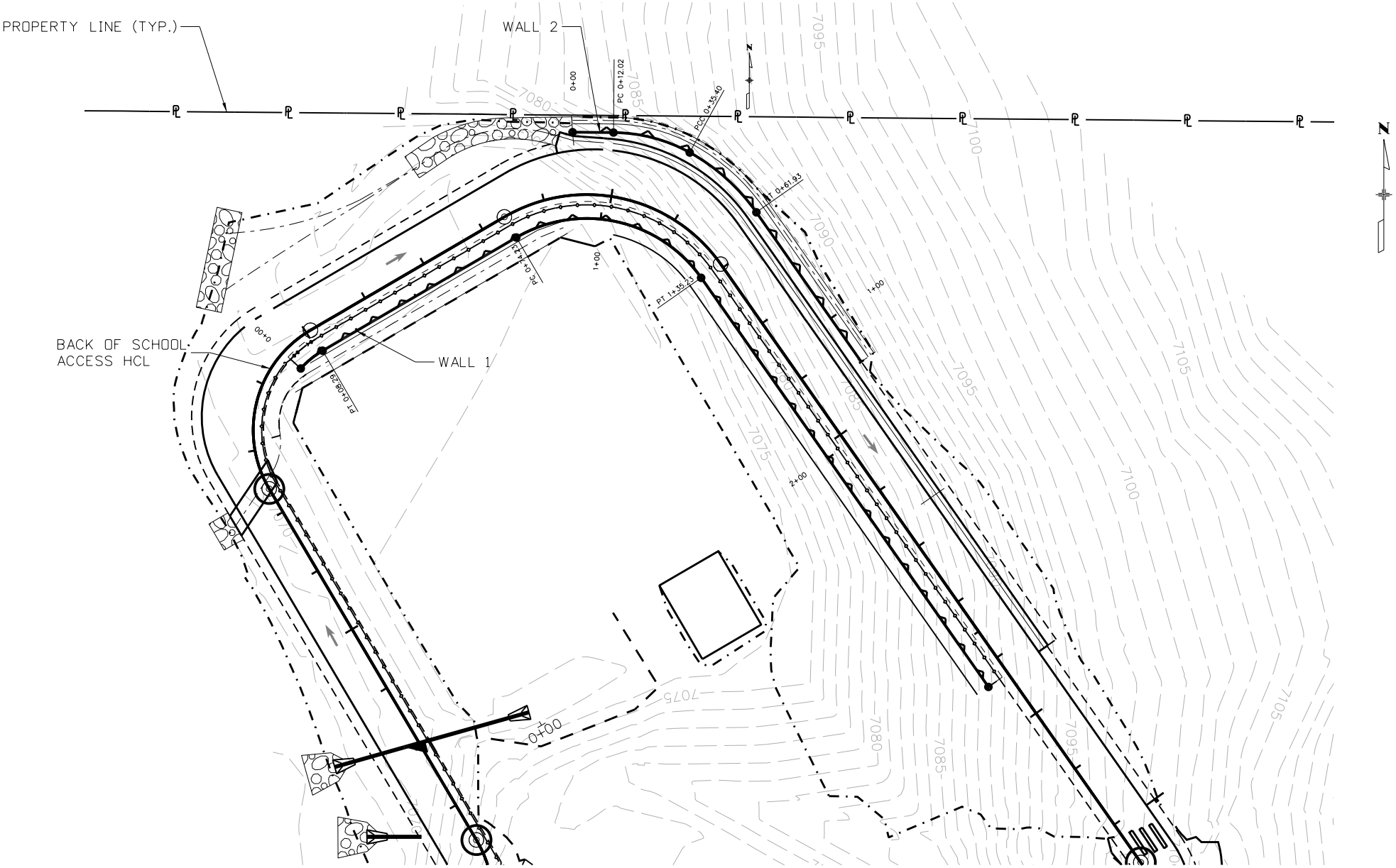
ALL PLAN DIMENSIONS ARE TRUE HORIZONTAL. VERTICAL DIMENSIONS ARE PLUMB, UNLESS NOTED OTHERWISE.

STRUCTURE EXCAVATION AND BACKFILL SHALL BE AS SHOWN ON THE PLANS.

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

INDEX OF DRAWINGS

- W1 WALL GENERAL INFORMATION
- W2 WALL 1 PLAN AND PROFILE (1 OF 2)
- W3 WALL 1 PLAN AND PROFILE (2 OF 2)
- W4 WALL 2 PLAN AND PROFILE
- W5 WALL DETAILS




KEY MAP



Know what's below.  
Call before you dig.



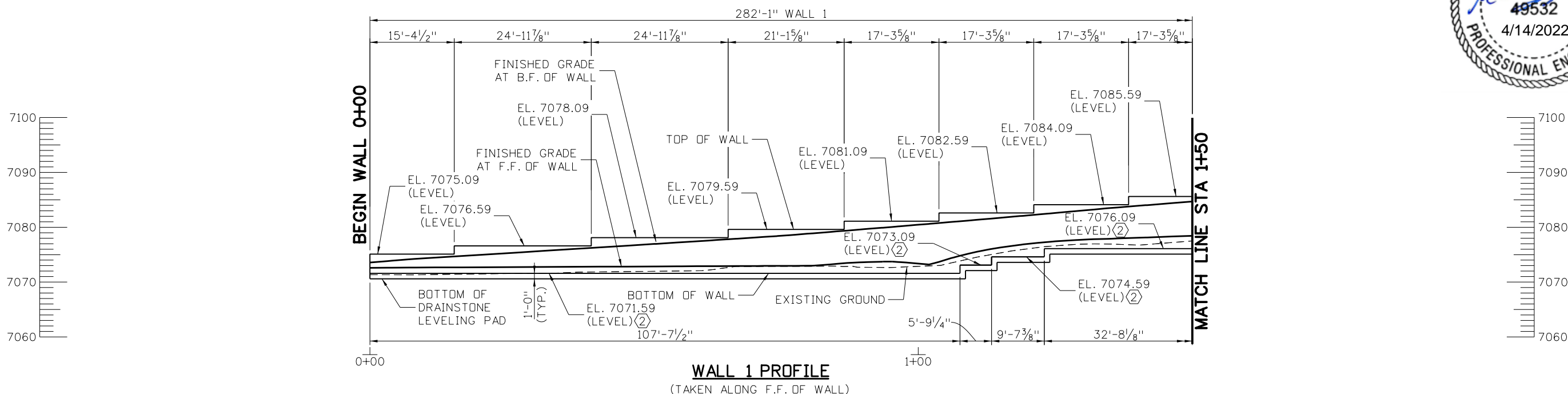
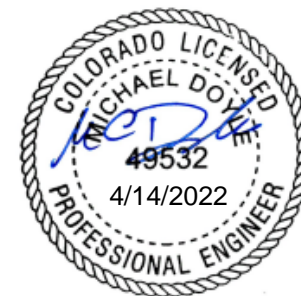
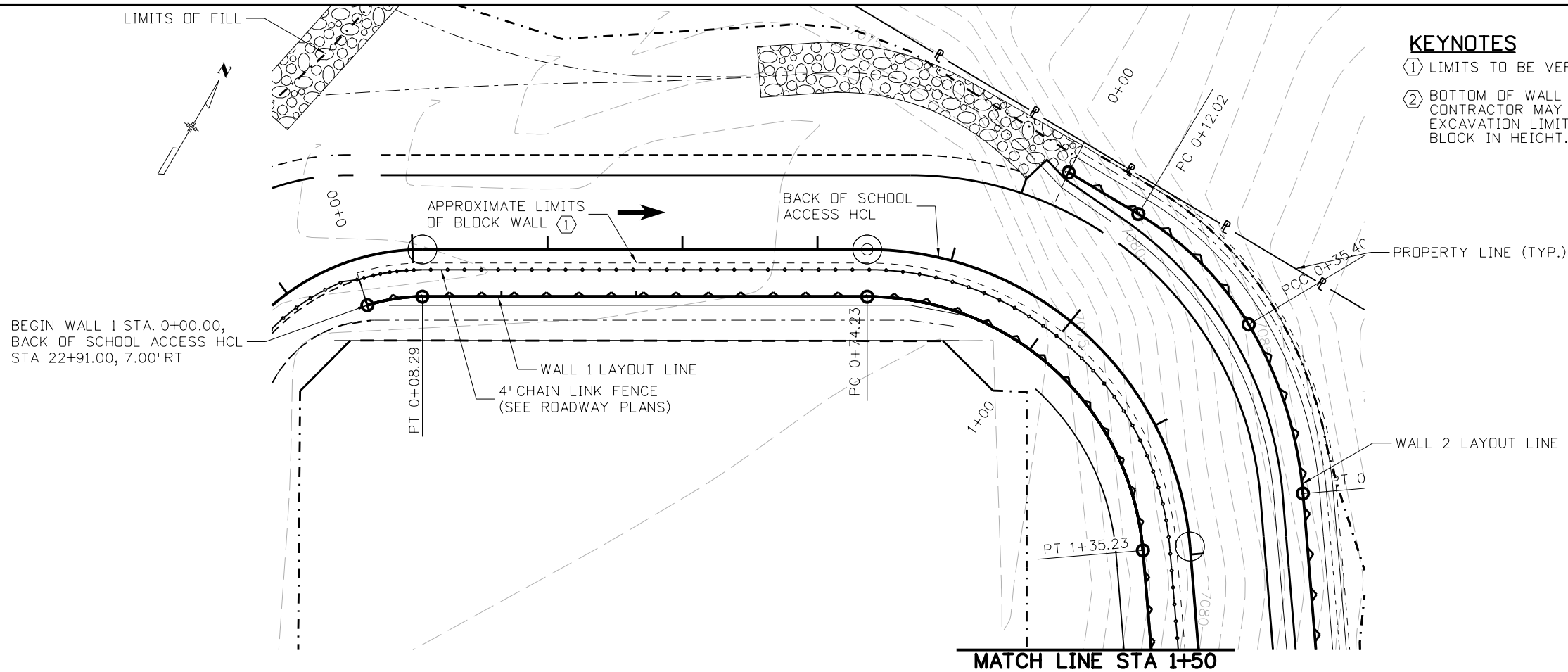
Print Date: 4/13/2022
File Name: 01-General Information
Horiz. Scale: 1:40      Vert. Scale: None
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800

Sheet Revisions		
Date:	Comments	Init.



As Constructed	MONUMENT ACADEMY WALL GENERAL INFORMATION			Project No./Code
No Revisions:				
Revised:	Designer: M. DOYLE	Structure Numbers		
Void:	Detailer: P. GREHAN			
	Sheet Subset: WALL	Subset Sheets: W1 of 5		Sheet Number 41 of 81

P:\GREHAN\1:49:55 PM p:\1\WPAPPD\MA001\North\Central\Omaha\Documents\2007\16\0000000000260510\6.0\_CAD\_BIM\6.2\_Work\_In\_Progress\Drawings\Monument Academy Walls\02-Wall1 Plan and Profile (1 of 2)

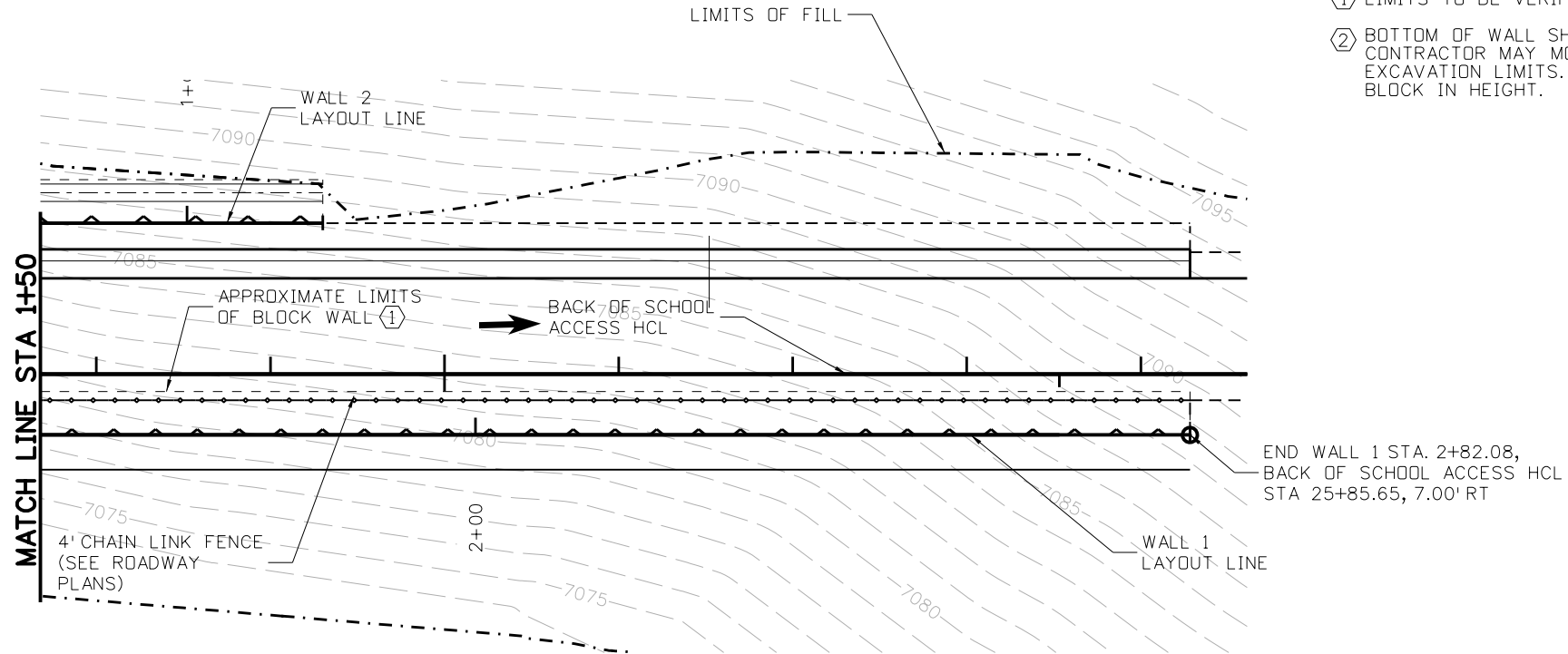
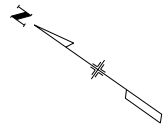


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Horiz. Scale: 1:20      Vert. Scale: None							Revised:		Designer:	M. DOYLE	Structure			
							Void:		Detailer:	P. GREHAN	Numbers			
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800									Sheet Subset:	WALL	Subset Sheets:	W2 of 5	Sheet Number    42 of 81	

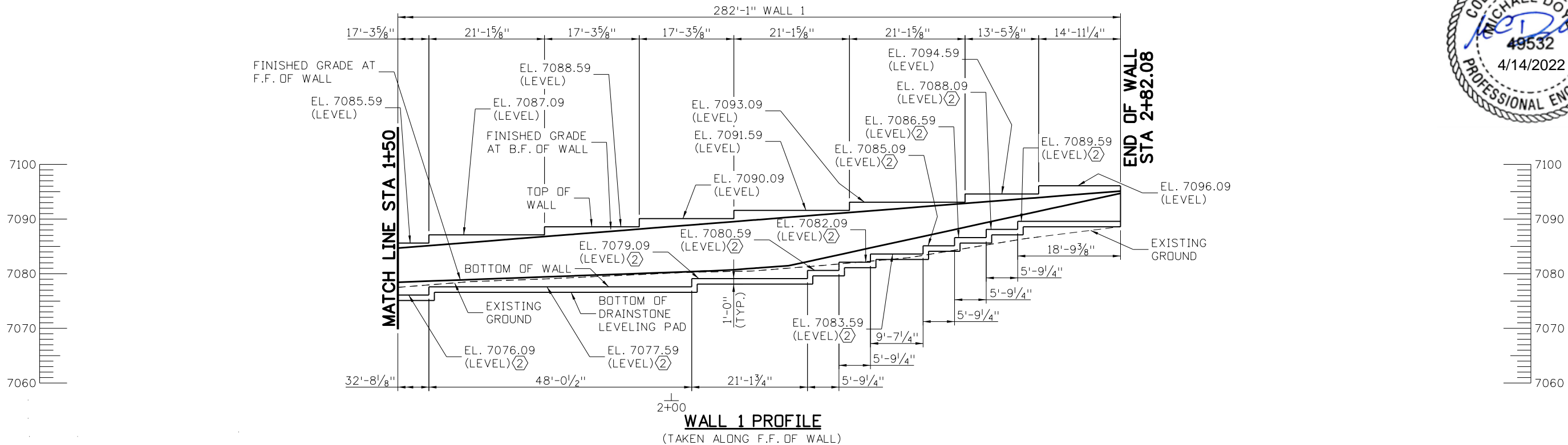




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WALL 1 PLAN




WALL 1 PROFILE

(TAKEN ALONG F.F. OF WALL)

KEYNOTES

- ① LIMITS TO BE VERIFIED BY CONTRACTOR.
- ② BOTTOM OF WALL SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR MAY MODIFY STEP LOCATIONS TO ACCOMMODATE EXCAVATION LIMITS. STEP HEIGHT SHALL NOT EXCEED ONE BLOCK IN HEIGHT.



Print Date: 4/13/2022
File Name: 03-Wall1 Plan and Profile (2 of 2)
Horiz. Scale: 1:20 Vert. Scale: None
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800

Sheet Revisions		
Date:	Comments	Init.



As Constructed	MONUMENT ACADEMY			Project No./Code
No Revisions:	WALL 1 PLAN AND PROFILE (2 OF 2)			
Revised:	Designer: M. DOYLE	Structure		Sheet Number 43 of 81
Void:	Detailer: P. GREHAN	Numbers		
	Sheet Subset: WALL	Subset Sheets: W3	of 5	

115'-6<sup>7</sup>/<sub>8</sub>" WALL 2

BEGIN WALL 2 STA 0+00

END WALL 2 STA 1+15.57

EXISTING GROUND

FINISHED GRADE AT B.F. OF WALL SEE NOTE 1

EL. 7082.33 (LEVEL)

EL. 7083.83 (LEVEL)

EL. 7085.33 (LEVEL)

EL. 7086.83 (LEVEL)

EL. 7080.33 (LEVEL) (2)

EL. 7081.83 (LEVEL) (2)

EL. 7083.33 (LEVEL) (2)

EL. 7084.83 (LEVEL) (2)

EL. 7078.83 (LEVEL) (2)

EL. 7089.83 (LEVEL)

TOP OF WALL

FINISHED GRADE AT F.F. OF WALL

BOTTOM OF WALL

BOTTOM OF DRAINSTONE LEVELING PAD 1'-0" (TYP.)

37'-6<sup>1</sup>/<sub>4</sub>"

28'-9<sup>7</sup>/<sub>8</sub>"

21'-1<sup>5</sup>/<sub>8</sub>"

17'-3<sup>5</sup>/<sub>8</sub>"

10'-9<sup>3</sup>/<sub>8</sub>"

6'-9<sup>1</sup>/<sub>4</sub>"

5'-9<sup>1</sup>/<sub>4</sub>"

9'-7<sup>3</sup>/<sub>8</sub>"

13'-5<sup>1</sup>/<sub>2</sub>"

40'-4<sup>1</sup>/<sub>4</sub>"

39'-7<sup>3</sup>/<sub>8</sub>"

0+00

1+00

Print Date: 4/13/2022		<div>00000</div>	Sheet Revisions				As Constructed		MONUMENT ACADEMY WALL 2 PLAN AND PROFILE			Project No./Code		
File Name: 04-Wall2 Plan and Profile			Date:	Comments	Init.		No Revisions:							
Horiz. Scale:1:20                      Vert. Scale: None			.	.	.		Revised:		Designer:	M. DOYLE	Structure	.		
			.	.	.		Void:		Detailer:	P. GREHAN	Numbers	.		
			.	.	.				Sheet Subset:	WALL	Subset Sheets:	W4 of 5	Sheet Number    44 of 81	
<div><div><div>HDR</div><div>5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800</div></div></div>														



NOTES:

1. WALL SHALL BE CONSTRUCTED USING THE REDI-ROCK BLOCK WALL OR APPROVED EQUAL. BLOCK LAYOUT DEPICTED BELOW FOR SCHEMATIC PURPOSES ONLY. CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S GUIDELINES FOR INSTALLATION USING MANUFACTURER'S STANDARDIZED MANUAL FOR PRE-ENGINEERED BLOCK WALLS AND SPEC BOOK. ALL COURSES OF BLOCKS SHALL BE PLACED LEVEL. REDI-ROCK DESIGN AND INSTALLATION GUIDES CAN BE FOUND AT WWW.EDI-ROCK.COM. DETAILS AND DESIGN PARAMETERS SHOWN IN THE CONTRACT PLANS AND SPECIFICATIONS TAKE PRECEDENCE OVER DETAILS AND PARAMETERS SHOWN IN MANUFACTURER'S GUIDES. SEE PROJECT SPECIFICATIONS FOR MORE INFORMATION.

2. THE SOILS REPORT FOR THIS PROJECT IS AVAILABLE FOR REVIEW BY THE CONTRACTOR. SEE REPORT TITLED "HIGHWAY 105 SCHOOL ACCESS LANE GEOTECHNICAL AND PAVEMENT DESIGN REPORT, SHANNON & WILSON, INC., FEBRUARY 2022".

DESIGN DATA - ENGINEERED BLOCK WALL:

DESIGN SPECIFICATIONS:  
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, NINTH EDITION, 2020 WITH CURRENT INTERIMS

DESIGN METHOD:  
LOAD AND RESISTANCE FACTOR DESIGN (LRFD)

WALL 1 LOADING:  
LEVEL BACKSLOPE EARTH PRESSURE  
TRAFFIC LIVE LOAD SURCHARGE  
LIVE LOAD (WALL FENCE): PEDESTRIAN LIVE LOAD ON RAILING

WALL 2 LOADING:  
2.5H:1V MAX BACK SLOPE EARTH PRESSURE  
EARTH PRESSURE LOADS ON WALL STRUCTURES SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS PROVIDED IN THE SOILS REPORT, HIGHWAY 105 SCHOOL ACCESS LANE GEOTECHNICAL AND PAVEMENT DESIGN REPORT, SHANNON & WILSON, INC., REBRUARY 2022.

KEY NOTES:

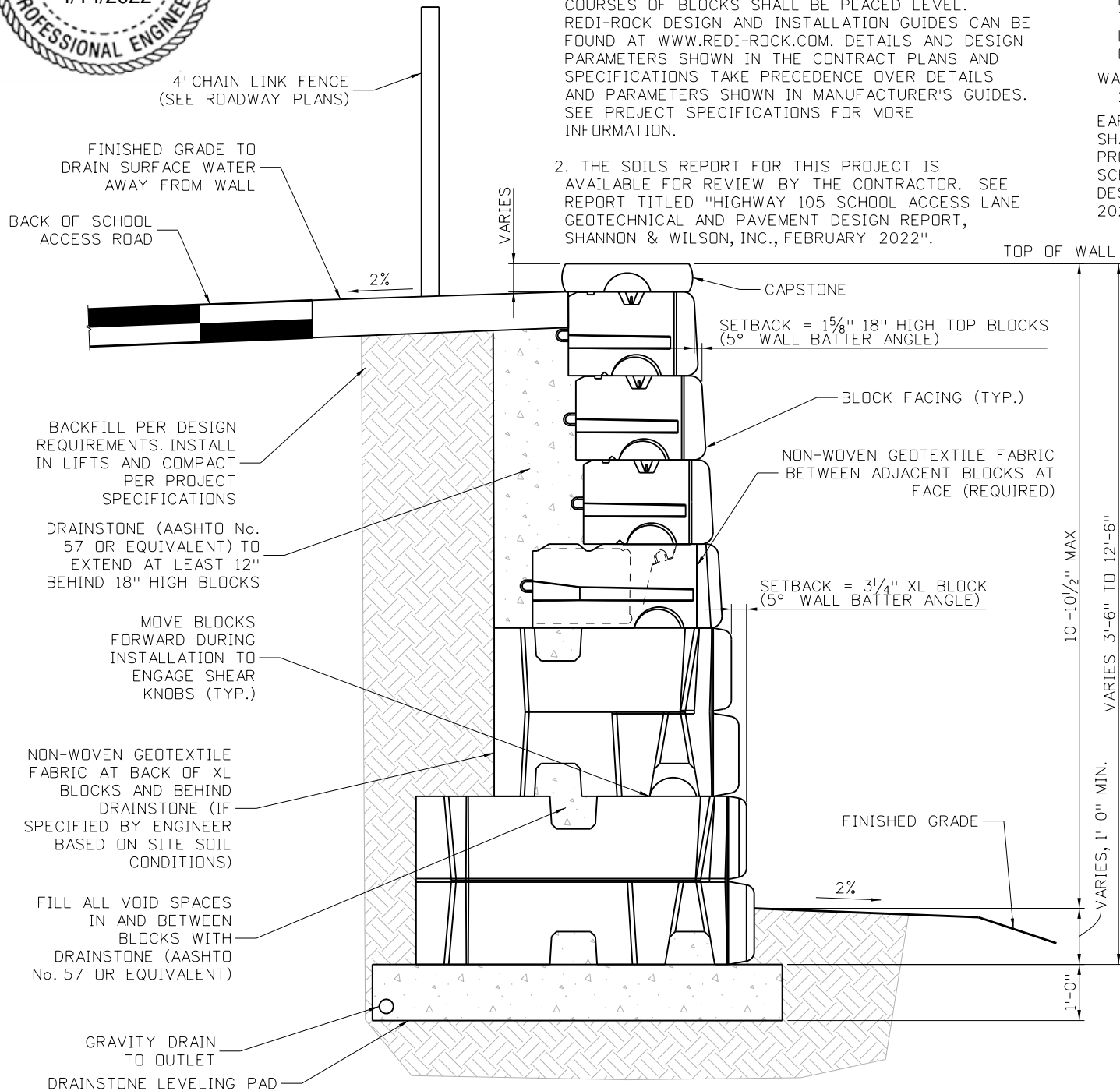
① BLOCK FACING AREA IS MEASURED BY THE VERTICAL AREA OF WALL SURFACE FROM TOP OF LEVELING PAD TO THE TOP OF WALL INCLUDING CAPSTONE. SEE PROJECT SPECIFICATIONS FOR MORE INFORMATION ON MEASUREMENT.

SUMMARY OF APPROXIMATE QUANITITES WALL 1

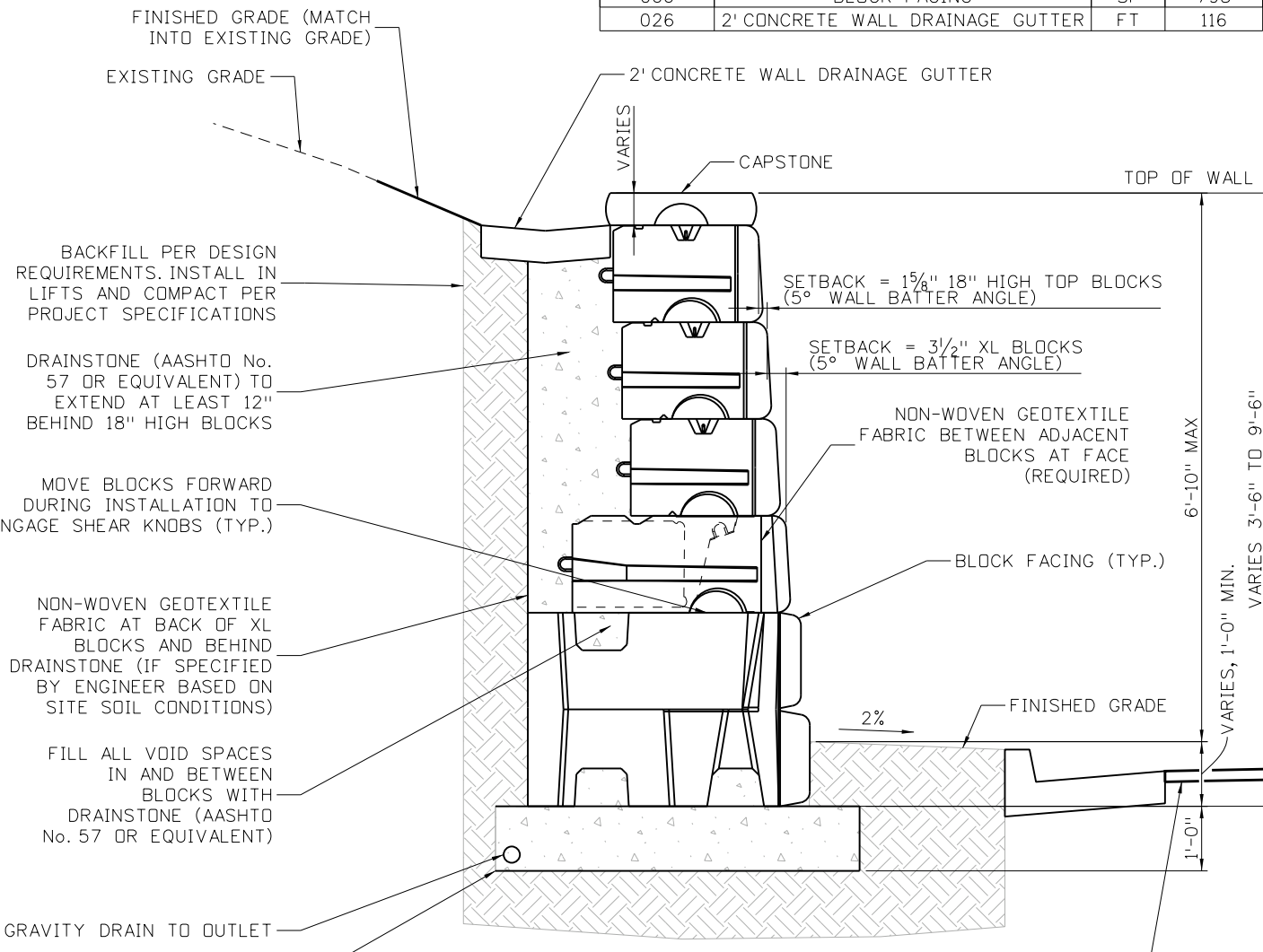
ITEM NO.	DESCRIPTION	UNIT	TOTAL
066	BLOCK FACING	SF	2,361

SUMMARY OF APPROXIMATE QUANITITES WALL 2

ITEM NO.	DESCRIPTION	UNIT	TOTAL
066	BLOCK FACING	SF	793
026	2' CONCRETE WALL DRAINAGE GUTTER	FT	116



WALL 1 TYPICAL SECTION  
(LOOKING STA AHEAD)



WALL 2 TYPICAL SECTION  
(LOOKING STA AHEAD)

Print Date: 4/13/2022  
File Name: 05-WallDetails  
Horiz. Scale: 1:2.66667 Vert. Scale: None

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Sheet Revisions		
Date:	Comments	Init.



As Constructed	MONUMENT ACADEMY WALL DETAILS			Project No./Code
No Revisions:	Designer: M. DOYLE	Structure Numbers		
Revised:	Detailer: P. GREHAN			
Void:	Sheet Subset: WALL	Subset Sheets: W5 of 5		Sheet Number 45 of 81



DMADDDCK 1:51:59 PM pw:\PWAPPDMA001\NorthCentral\_Dmaha\Documents\200716\_00000000026051\06\_0\_CAD\_BIM\6.2\_Work\_In\_Progress\Utilities\Drawings Monument Academy\SchoolAccess\_UTIL\_01\_SUE\_01.dgn



Know what's below.  
Call before you dig.

GENERAL

- ▲ CONTROL MONUMENT
- PI STATION
- PI STATION STRUCTURE
- THXX TESTHOLE

ELECTRIC

- GUY POLE
- GUY WIRE
- MANHOLE
- MARKER
- METER
- OUTLET
- PEDESTAL
- POLE
- PULLBOX
- SWITCH
- TOWER
- TRANSFORMER
- VAULT

FIBER OPTIC

- MANHOLE
- MARKER
- PEDESTAL
- POLE
- PULLBOX
- VAULT

GAS

- MANHOLE
- MARKER
- METER
- TANK
- VALVE
- VAULT
- VENT

GAS-HP

- HP MARKER
- HP METER
- HP VALVE
- HP VENT

IRRIGATION

- BLOWOFF
- MANHOLE
- MARKER
- METER
- PEDESTAL
- PULLBOX
- VALVE
- VENT

LIGHTING

- MARKER
- PEDESTAL
- POLE
- PULLBOX

OIL

- MARKER
- METER
- VALVE
- WELLHEAD

SANITARY

- CLEANOUT
- MANHOLE
- MARKER
- VALVE
- VAULT
- VENT

SIGNAL

- CONTROLLER
- MARKER
- PEDESTAL
- POLE
- PULLBOX

STORM

- CLEANOUT
- END SECTION
- INLET
- MANHOLE
- MARKER

TELEPHONE

- MANHOLE
- MARKER
- PEDESTAL
- POLE
- PULLBOX
- VAULT

TELEVISION

- MANHOLE
- MARKER
- PEDESTAL
- PULLBOX
- VAULT

WATER

- BLOWOFF
- HYDRANT
- MANHOLE
- MARKER
- METER
- VALVE
- VAULT
- VENT
- WELL

OTHER

- MANHOLE
- MARKER
- METER
- PEDESTAL
- POLE
- PULLBOX
- VALVE
- VAULT
- VENT
- OTHER

- OVERHEAD ELECTRIC LINE
- \*UNDERGROUND ELECTRIC LINE
- OVERHEAD FIBER OPTIC LINE
- \*UNDERGROUND FIBER OPTIC LINE
- PROPOSED UNDERGROUND GAS
- OVERHEAD GAS
- \*UNDERGROUND GAS LINE
- \*UNDERGROUND HIGH PRESSURE GAS LINE
- \*UNDERGROUND IRRIGATION LINE
- PROPOSED UNDERGROUND LIGHTING CONDUIT
- OVERHEAD LIGHTING LINE
- \*UNDERGROUND LIGHTING LINE
- OVERHEAD OIL LINE
- \*UNDERGROUND OIL LINE
- OVERHEAD SANITARY LINE
- \*UNDERGROUND SANITARY SEWER
- \*UNDERGROUND SANITARY/STORM SEWER COMBINED
- OVERHEAD SIGNAL LINE
- \*UNDERGROUND SIGNAL LINE
- \*UNDERGROUND STORM SEWER
- \*UNDERGROUND TELECOM DUCTBANK

- OVERHEAD TELEPHONE LINE
- \*UNDERGROUND TELEPHONE LINE
- OVERHEAD TELEVISION LINE
- \*UNDERGROUND TELEVISION LINE
- OVERHEAD WATER LINE
- \*UNDERGROUND WATER LINE



NOTE:  
\*UTILITY LOCATE QUALITY LEVELS NOTED ON PLAN.  
LINES DETERMINED ACCORDING TO ASCE 38-02.

Print Date: 4/13/2022

File Name: SchoolAccess\_UTIL\_01\_SUE\_01.dgn

Horiz. Scale: NONE      Vert. Scale: None

5555 TECH CENTER DRIVE, SUITE 310

COLORADO SPRINGS, CO 80919

PHONE: 719-272-8800

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Sheet Revisions		
Date:	Comments	Init.

As Constructed		MONUMENT ACADEMY SUE INVESTIGATION LEGEND				Project No./Code
No Revisions:						
Revised:		Designer: J. VESTAD	Structure			
Void:		Detailer: D. MADDOCK	Numbers			
		Sheet Subset: SUE	Subset Sheets: 1 of 4	Sheet Number 46 of 81		



Know what's below.  
Call before you dig.

SUBSURFACE UTILITY ENGINEERING (SUE) INVESTIGATION NOTES:

- NOTE S1 - TIME FRAME:  
HDR ENGINEERING, INC. PERFORMED SUE LOCATING AND SURVEYING DURING AUGUST AND DECEMBER 2021.
- NOTE S2 - CONTROL:  
HDR ENGINEERING, INC. UTILIZED LAND SURVEY CONTROL SET DURING PREVIOUS TOPOGRAPHIC SURVEY AND PROVIDED BY FARNSWORTH GROUP WHILE COMPLETING THE SUE SURVEY. POSITIONAL CHECKING WAS CONDUCTED AT CONTROL POINT 902.
- NOTE S3 - EQUIPMENT:  
THE UTILITY SURVEY UTILIZED TRIMBLE R8 AND CATALYST RECEIVERS WHICH TRACK GPS GLONASS AND GNSS SATELLITES WITH VRS CORRECTION SERVICE.
- NOTE S4 - ACCURACY:  
GPS NETWORK QC CHECKS WERE PERFORMED AT PREVIOUSLY ESTABLISHED CONTROL POINT 902. SUE SURVEY GROUND SHOTS WERE COLLECTED AT AN ACCURACY OF 0.5 FEET OR BETTER.
- NOTE S5 - PLANIMETRICS:  
SYMBOLS AND LINES REPRESENTING TOPOGRAPHIC SURVEY AND OTHER PLANIMETRIC FEATURES WERE SURVEYED BY FARNSWORTH GROUP AND SHOWN AS BACKGROUND INFORMATION ON THE SUBSURFACE UTILITY INVESTIGATION PLAN. ONLY UTILITY FEATURES WERE FIELD MEASURED DURING THE SUE INVESTIGATION.

ENGINEERING NOTES:

- NOTE E1 - OUT OF SERVICE UTILITIES:  
OUT OF SERVICE OR ABANDONED UTILITY LINES THAT MAY BE SHOWN ON THE SUE INVESTIGATION PLAN WERE LOCATED DUE TO THE PRESENCE OF ABOVE GROUND APPURTENANCES OR OWNER-PROVIDED MAPPING. THE SUE INVESTIGATION PLAN IS INTENDED TO SHOW ACTIVE UTILITY LINES AND DOES NOT SHOW ALL OUT OF SERVICE UTILITY LINES THAT MAY EXIST IN THE PROJECT AREA. OUT OF SERVICE STATUS WAS DETERMINED VIA OWNER PROVIDED MAPPING OR DIRECTION AND IS NOT AFFIRMED BY HDR ENGINEERING, INC. THE CONTRACTOR SHALL USE CAUTION AROUND OUT OF SERVICE UTILITY LINES AND SHALL TREAT THEM AS IF THEY ARE ACTIVE.
- NOTE E2: - CONTRACTOR RESPONSIBILITY:  
A PROGRAMMATIC EFFORT HAS BEEN MADE TO SYSTEMATICALLY LOCATE, SURVEY, AND DEPICT UTILITIES WITHIN THE PROJECT AREA TO THE EXTENT PRACTICAL. SUE INVESTIGATION PLANS ARE FOR DESIGN PURPOSES ONLY AND REFLECT SUBSURFACE UTILITY CONDITIONS AT THE TIME OF THE SUE INVESTIGATION. EXISTING UTILITY LOCATIONS DEPICTED ON THE PLANS DO NOT SUPERSEDE COLORADO STATE ONE CALL DEMARCATIONS OF BURIED UTILITIES OR RELIEVE THE CONTRACTOR FROM THE LEGAL REQUIREMENT TO CONTACT ONE CALL TWO WORKING DAYS PRIOR TO CONSTRUCTION. HDR ENGINEERING, INC SHOULD BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THE EXISTING UTILITY PLAN AND ONE CALL DEMARCATIONS. THE CONTRACTOR SHALL USE CAUTION UNTIL SUCH DISCREPANCIES ARE RESOLVED.
- NOTE E3 - SERVICE LATERALS:  
UTILITY SERVICE LATERALS WERE LOCATED WHEN DEPICTED ON UTILITY OWNER MAPPING AND WHEN EXISTENCE COULD BE VERIFIED IN THE FIELD. IT IS POSSIBLE THAT PREVIOUSLY UNKNOWN SERVICE LATERALS MAY EXIST WITHIN THE PROJECT CORRIDOR. THE CONTRACTOR SHALL VERIFY ALL SERVICE LATERALS WITH MONUMENT ACADEMY AND UTILITY OWNERS AS REQUIRED DURING CONSTRUCTION.

ENGINEERING NOTES CONTINUED:

- NOTE E4: - SEWER QUALITY LEVEL  
STORM SEWERS AND SANITARY SEWER MAINS SHOWN ON THE SUE INVESTIGATION PLAN ARE DEPICTED AS QUALITY LEVEL C OR D. THESE LINES WERE NOT LOCATED USING GEOPHYSICAL MEANS AS THIS LEVEL OF INVESTIGATION WOULD PROVIDE RELATIVELY LITTLE ADDITIONAL USEFUL INFORMATION. SEWER LINES DEPICTED AS QUALITY LEVEL C WERE IDENTIFIED DURING PREVIOUS TOPOGRAPHIC SURVEY VIA ABOVE GROUND APPURTENANCES. STORM SEWER LINES DEPICTED AS QUALITY LEVEL D WERE IDENTIFIED VIA MONUMENT ACADEMY AS-BUILT PLANS, ISSUE DATE OF OCTOBER 2007.
- NOTE E5: - SANITARY SERVICE PIPES WITHIN THE PROJECT SITE ARE NOT CONDUCTIVE AND WERE NOT LOCATABLE VIA CONVENTIONAL SUE INVESTIGATION. SANITARY SERVICE LINES SHOWN ON THE SUE INVESTIGATION PLANS ARE BASED ON MONUMENT ACADEMY AS-BUILT PLANS, ISSUE DATE OF OCTOBER 2007 AND DEPICTED AT QUALITY LEVEL D AS A RESULT. THE CONTRACTOR SHALL EXHIBIT APPROPRIATE CAUTION AND LOCATE VIA PLUMBER AS REQUIRED DURING CONSTRUCTION.

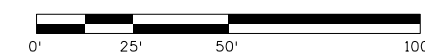
UTILITY CONTACT LIST - MONUMENT ACADEMY				
UTILITY OWNER	UTILITY TYPE	CONTACT	PHONE	EMAIL
Black Hills Energy (BHE)	Gas	Bob Swatek	Office: 719-332-5856	bob.swatek@blackhillscorp.com
Lumen Technologies (Formerly CenturyLink / Level 3) Represented By Terra Technologies	Design	Robert McLeod (Terra)	Mobile: 303-949-2187	rmcleod@terrrtechllc.net
	Fiber / Telephone (Local Network)	Andy Hekkers	Mobile: 719-355-7346	andrew.hekkers@centurylink.com
Monument Academy	Lighting	Vinnie Devincenzo	Office: 719-431-8001 Ext. 1039	vdevincenzo@monumentacademy.net
Mountain View Electric Association (MVEA)	Electric	Wayne Baab	Office: 719-487-9292 Mobile: 719-331-1651	wayne@wrbengcorp.com
Woodmoor Water & Sanitation District (WWSD)	Sanitary Sewer Water	Ariel Hacker (Engineering)	Office: 719-488-2525 x 13	arielh@woodmoorwater.com
		Dan LaFontaine (Operations)	Office: 719-488-2525 x 18	danl@woodmoorwater.com

Testhole Matrix										
Testhole #	Testhole Location and Data									Testhole Notes
	Owner	Size	Material	Northing	Easting	Surface Elevation	Measure Down	Utility Elevation		
								Top	Bottom	
HDR_MA-1	Monument Academy	1"	Plastic	1460099.222	3186604.856	7094.80	1.92	7092.88	7092.80	Cover Difference: +/- 2.2'
HDR_MA-2	Black Hills Energy	2"	Plastic	1460138.201	3186622.505	7091.35	2.33	7089.02	7088.85	
HDR_MA-3	Woodmoor Water and Sanitation District	10"	Plastic	1460128.415	3186629.909	7092.03	7.75	7084.28	7083.45	
HDR_MA-4	Woodmoor Water and Sanitation District	8"	Plastic	1460112.092	3186642.258	7092.21	5.58	7086.63	7085.96	
HDR_MA-5	Mountain View Electric Association	2-4"	Plastic	1460091.378	3186662.236	7099.07	4.25	7094.82	7094.49	Cover Difference: +/- 6.0'
HDR_MA-6	Woodmoor Water and Sanitation District	6"	Plastic	1460133.443	3186994.894	7113.09	6.33	7106.76	7106.26	Cover Difference: +/- 0.3'
HDR_MA-7	Monument Academy	2"	Plastic	1460139.853	3187000.269	7113.89	2.58	7111.31	7111.14	Cover Difference: +/- 0.5'



Print Date: 4/13/2022		Sheet Revisions				As Constructed		MONUMENT ACADEMY SUE INVESTIGATION PLAN GENERAL NOTES			Project No./Code
File Name: SchoolAccess_UTIL_02_SUE_02.dgn		Date:	Comments	Init.		No Revisions:		Designer: J. VESTAD	Structure		
Horiz. Scale: NONE      Vert. Scale: None						Revised:		Detailer: D. MADDOCK	Numbers		
						Void:		Sheet Subset: SUE	Subset Sheets: 2 of 4		Sheet Number 47 of 81
5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800											

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1. IN GENERAL EXISTING IRRIGATION LINES AND APPURTENANCES WITHIN THE PROJECT SITE WILL BE ABANDONED. THE CONTRACTOR MAY REMOVE EXISTING IRRIGATION AS NEEDED UPON APPROVAL OF THE OWNER.



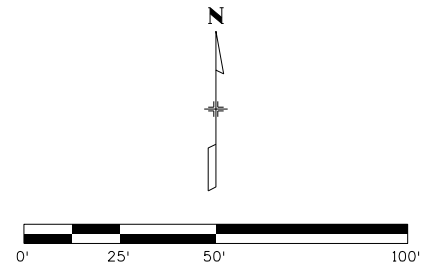
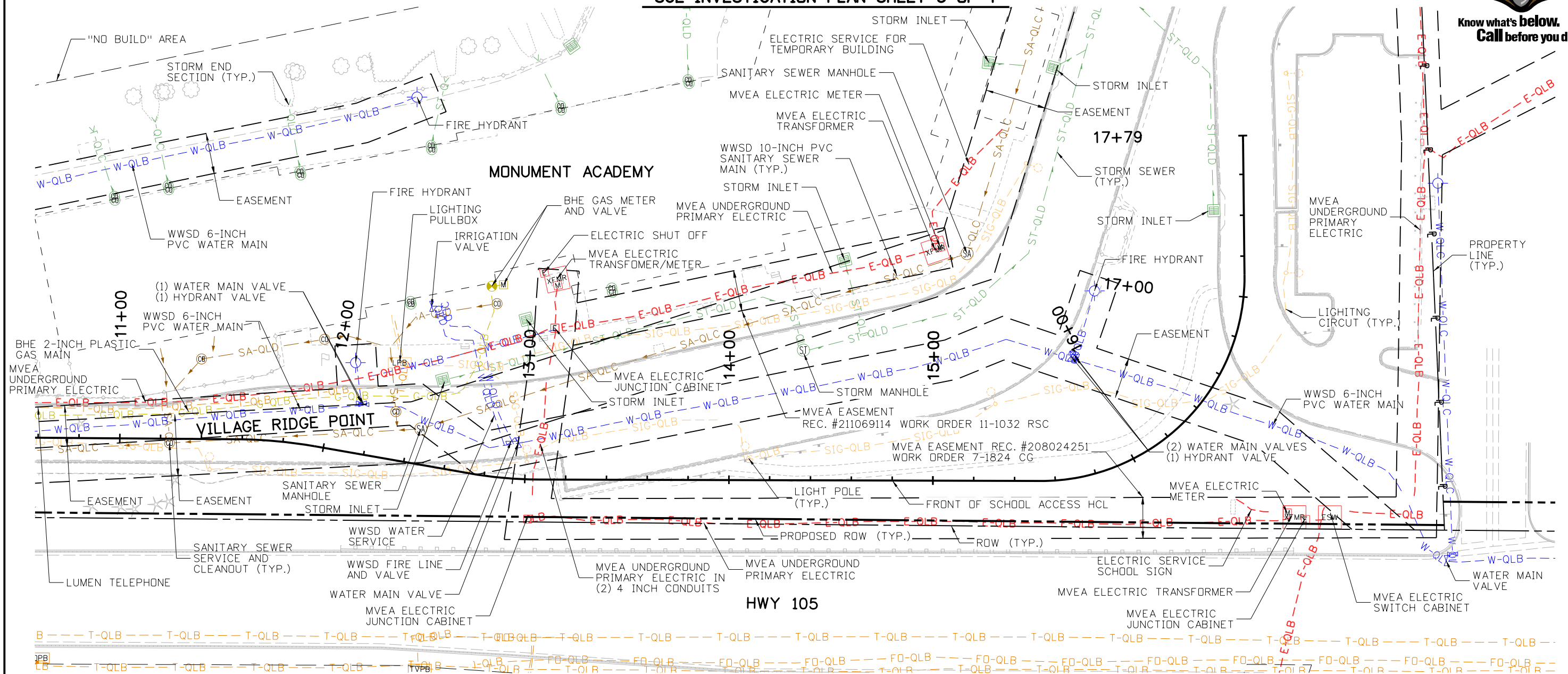
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 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800						Revised:		Designer: J. VESTAD	Structure			
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								Sheet Subset: SUE	Subset Sheets: 3 of 4		Sheet Number	48 of 81



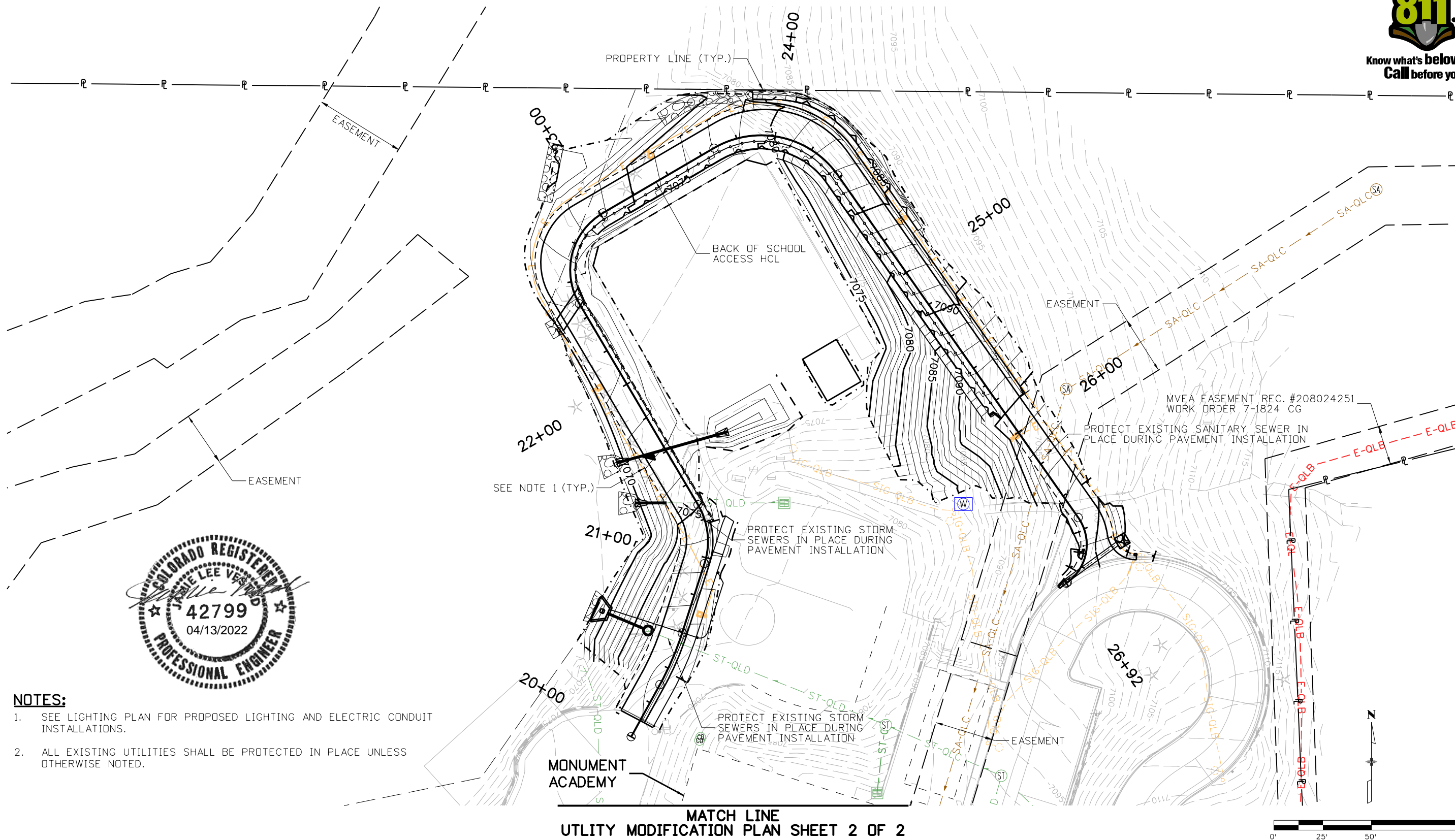


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MATCH LINE  
SUE INVESTIGATION PLAN SHEET 3 OF 4



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							Detailer: D. MADDOCK						
							Void:		Sheet Subset: SUE	Subset Sheets: 4 of 4		Sheet Number 49 of 81	
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800													

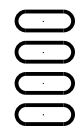


**NOTES:**

1. SEE LIGHTING PLAN FOR PROPOSED LIGHTING AND ELECTRIC CONDUIT INSTALLATIONS.
2. ALL EXISTING UTILITIES SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.

MATCH LINE  
UTILITY MODIFICATION PLAN SHEET 2 OF 2

Print Date: 4/13/2022
File Name: SchoolAccess_UTIL_05_MDD_01.dgn
Horiz. Scale: 1:50      Vert. Scale: None
<b>HR</b> 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800



Sheet Revisions		
Date:	Comments	Init.



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Revised:
Void:

MONUMENT ACADEMY UTILITY MODIFICATION PLAN BACK OF SCHOOL		
Designer: J. VESTAD	Structure Numbers	
Detailer: D. MADDOCK		
Sheet Subset: UTILITY	Subset Sheets: 1 of 2	

Project No./Code
Sheet Number 50 of 81



MONUMENT ACADEMY

TH #HDR\_MA-2  
EXISTING GAS SERVICE LINE TO BE RELOCATED IN  
PLACE BY OTHERS TO ACCOMMODATE STORM SEWER  
INSTALLATION. CONTRACTOR TO COORDINATE WITH  
BHE DURING CONSTRUCTION.

TH #HDR-MA-3  
-PROTECT EXISTING SANITARY SEWER IN  
PLACE DURING STORM SEWER INSTALLATION.

REC. #211069114 WORK ORDER 11-1032 RSC

MVEA EASEMENT REC. #208024251  
WORK ORDER 7-1824 CC - - -

HWY 105

PROPOSED HWY105A WALL PL  
(WALL WILL BE INSTALLED  
PRIOR TO FRONT OF SCHOOL  
ACCESS ROAD CONSTRUCTION)

PROTECT EXISTING LIGHTING CIRCUIT IN  
PLACE DURING SIDEWALK INSTALLATION

PROTECT EXISTING LIGHTING CIRCUIT IN PLACE DURING PAVEMENT INSTALLATION

TH #HDR\_MA-6 — W-QLB — —  
— PROTECT EXISTING WATER MAIN IN  
PLACE DURING PAVEMENT INSTALLATION

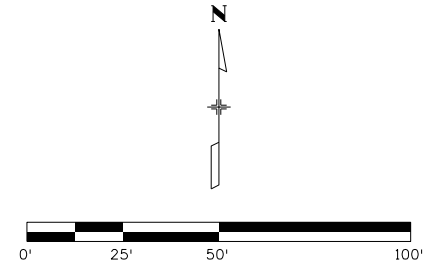
TH #HDR\_MA-1  
SEE NOTE 1

TH #HDR\_MA-5  
EXISTING ELECTRIC LINE AND JUNCTION  
- CABINET TO BE RELOCATED BY OTHERS  
PRIOR TO CONSTRUCTION OF HWY 105A  
RETAINING WALL

TH #HDR\_MA-4  
PROTECT EXISTING WATER MAIN IN PLACE DURING  
- STORM SEWER INSTALLATION. INSTALL PIPE SADDLE  
BETWEEN WATER MAIN AND STORM SEWER.  
SEE DRAINAGE DETAIL.

NOTES:

1. SEE LIGHTING PLAN FOR PROPOSED LIGHTING CONDUIT RELOCATIONS.
2. SEE SUE INVESTIGATION SHEET 1 FOR TESTHOLE MATRIX.
3. ALL EXISTING UTILITIES SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.



As Constructed	MONUMENT ACADEMY UTILITY MODIFICATION PLAN FRONT OF SCHOOL			Project No./Code
No Revisions:				
Revised:	Designer: J. VESTAD	Structure	.	
	Detailer: D. MADDOCK	Numbers	.	
Void:	Sheet Subset: UTILITY	Subset Sheets: 2 of 2		Sheet Number 51 of 81



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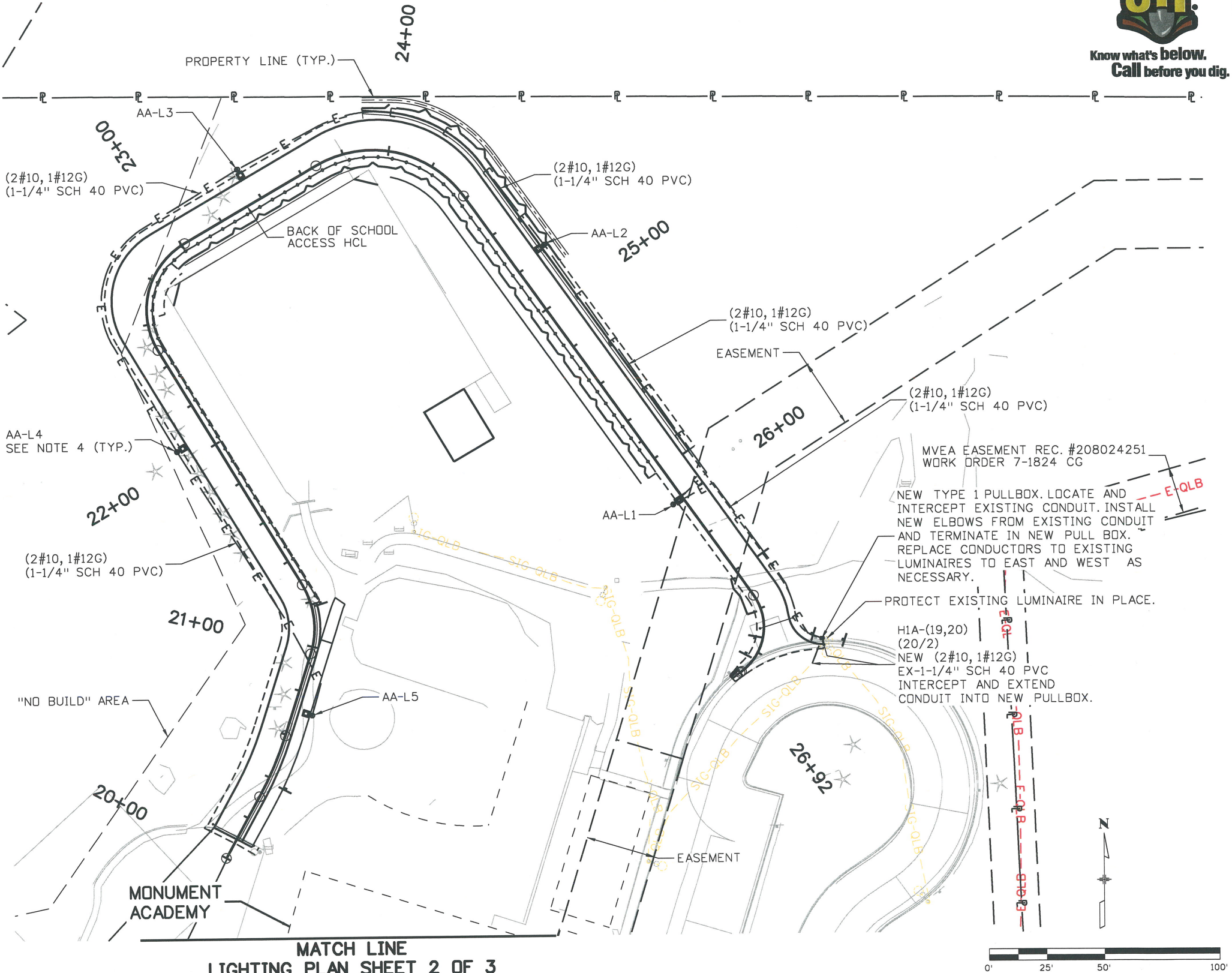
KEY	DESCRIPTION	LAMPS	VOLT	TOTAL VA	MANUFACTURER	
					DESIGN BASIS	
					NAME	CATALOG NO.
AA	SINGLE HEAD TYPE 2 LED AREA LIGHT MOUNTED ON 20' SQUARE STRAIGHT STEEL POLE.	LED	480	81	McGRAW-EDISON	GALN-SA2B-730-H-T2-BZ



Know what's below.  
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GENERAL NOTES:

1. WORK INCLUDED IN CONTRACT IS SHOWN BOLD. WORK SHOWN LIGHT IS EXISTING TO REMAIN.
2. BRANCH CIRCUITS TO FIXTURES MAY BE TYPE THHN/THWN CONDUCTORS IN SCHEDULE 40 PVC CONDUIT
3. ALL CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS.
4. LIGHTING FOUNDATIONS SHALL BE A MINIMUM OF ONE FOOT BEHIND THE AGGREGATE BASE COURSE (CLASS 6) SHOULDER.



MATCH LINE  
LIGHTING PLAN SHEET 2 OF 3

Print Date: 4/13/2022
File Name: SchoolAccess_UTIL_07_LIGHT_01.dgn
Horiz. Scale: 1:50      Vert. Scale: None

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COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800

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Date:	Comments	Init.



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MONUMENT ACADEMY LIGHTING PLAN BACK OF SCHOOL	
Designer: T. HOCHHALTER	Structure Numbers
Detailer: D. MADDOCK	
Sheet Subset: LIGHTING	Subset Sheets: 1 of 3

Project No./Code
Sheet Number 52 of 81

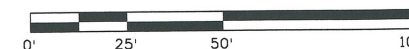
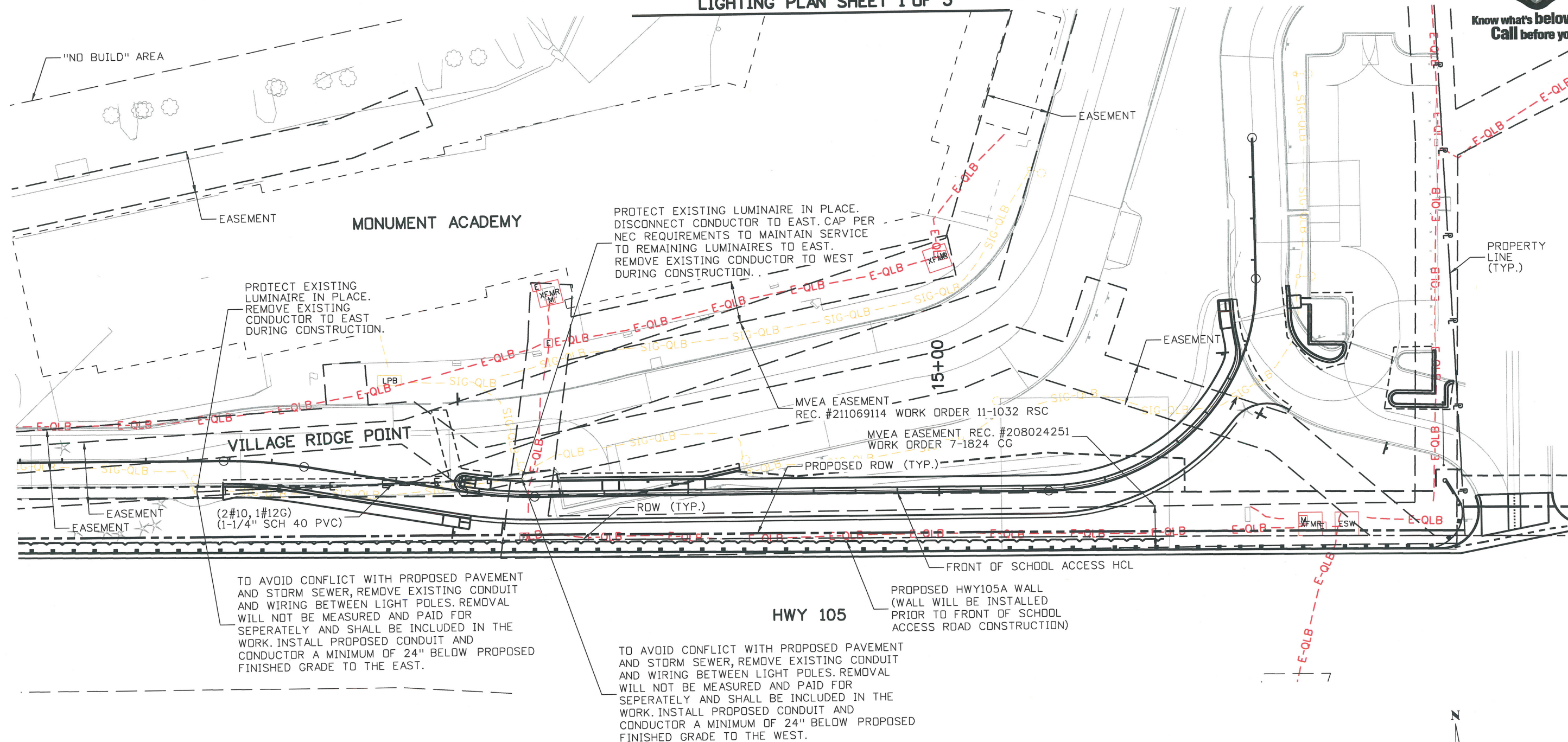


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MATCH LINE  
LIGHTING PLAN SHEET 1 OF 3



Print Date: 4/13/2022  
File Name: SchoolAccess\_UTIL\_08\_LIGHT\_02.dgn  
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**HR** 5555 TECH CENTER DRIVE, SUITE 310  
COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800

Sheet Revisions		
Date:	Comments	Init.



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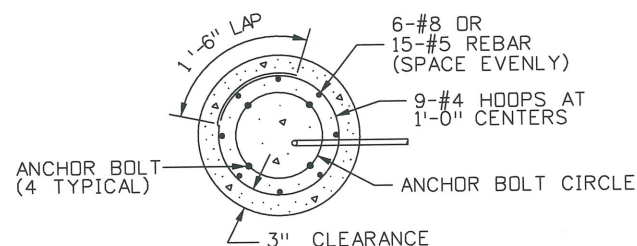
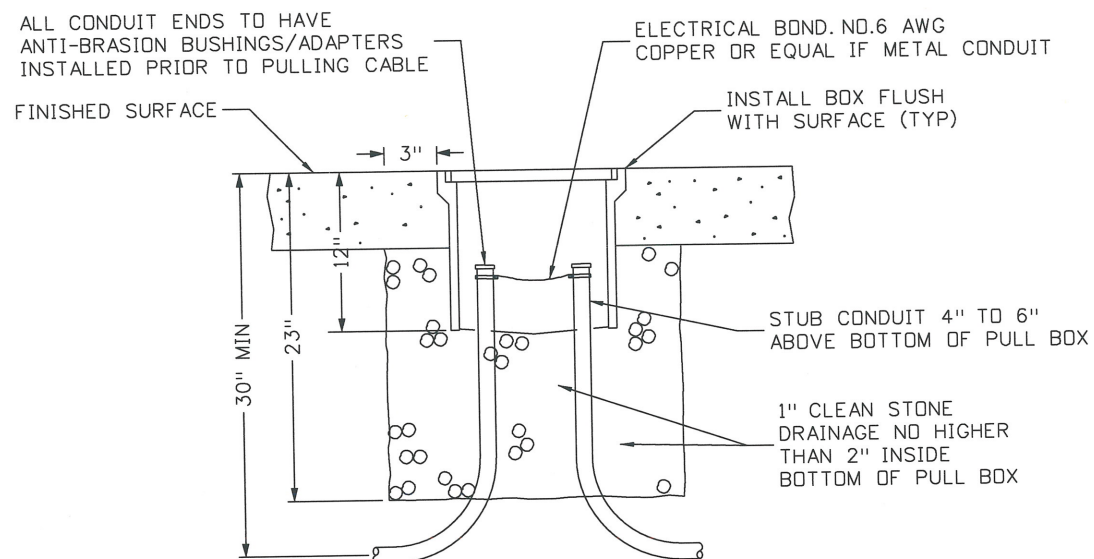
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Designer: T. HOCHHALTER	Structure Numbers
Detailer: D. MADDOCK	
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Project No./Code
Sheet Number 53 of 81

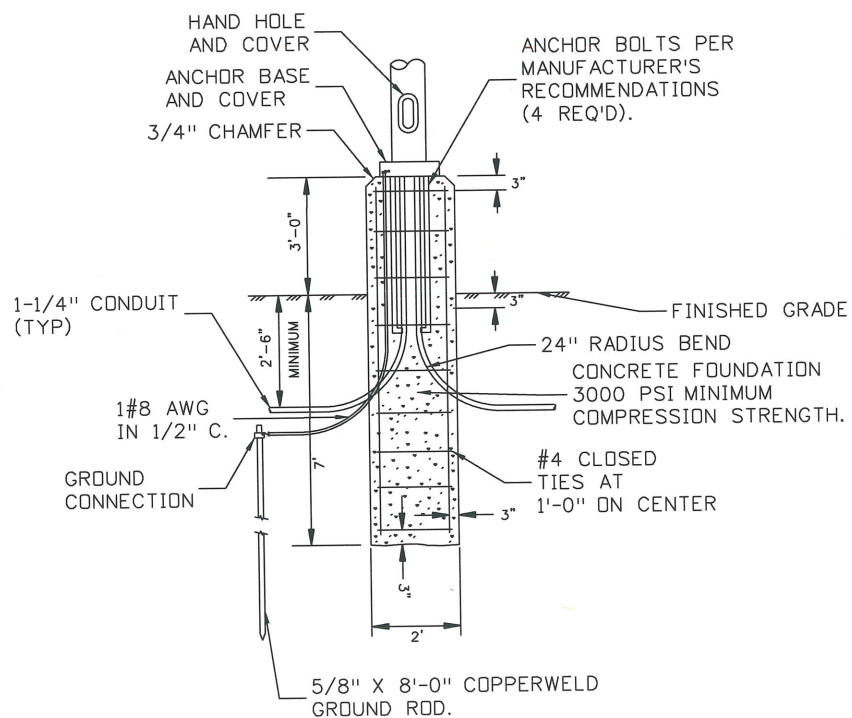




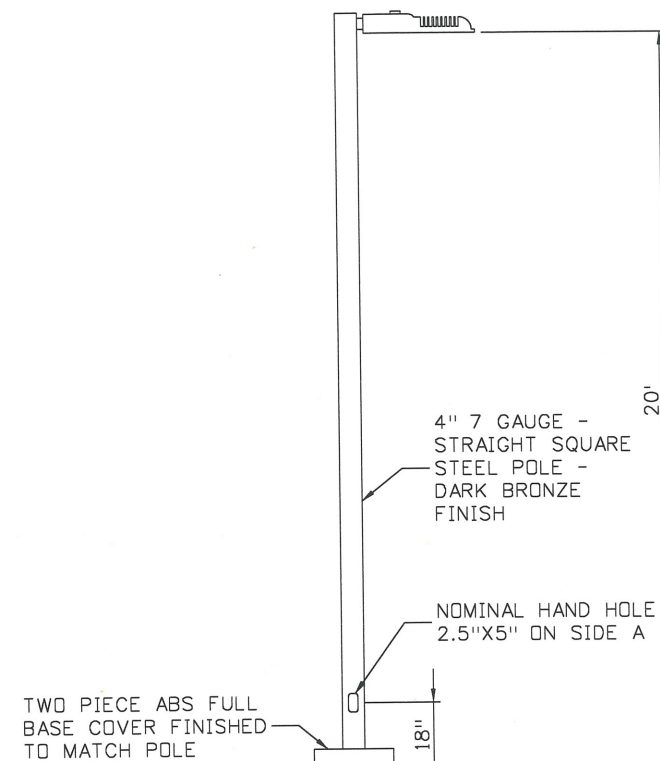
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SECTION A-A



LUMINAIRE POLE BASE DETAIL



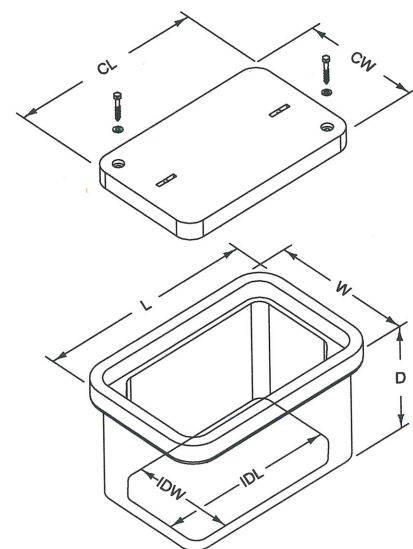
MANUFACTURER NUMBER: SSS4A20SF

LUMINAIRE POLE DETAIL



NOTES:

1. USE FUSED-BREAKAWAY CONNECTORS IN POLE BASES FOR TAPS TO LUMINAIRES
2. USE NONFUSED, NON-BREAKAWAY CONNECTORS IN PULL BOXES
3. USE MIDGET FERRULE FUSES IN FUSED CONNECTORS.
4. USE FUSES RATED AT 6 AMPS FOR LED LUMINAIRES.



PULL BOX - COMPOSITE MINIMUM DIMENSIONS			
TYPE 1		TYPE 2	TYPE 3
L	= 20"	L = 25"	L = 32"
W	= 13"	W = 15"	W = 19"
D	= 12"	D = 12"	D = 12"
IDL	= 17"	IDL = 21"	IDL = 28"
IDW	= 10"	IDW = 11"	IDW = 15"
CL	= 18"	CL = 23"	CL = 30"
CW	= 11"	CW = 13"	CW = 17"

NOTE:  
LABEL ALL CONDUIT WITHIN EACH VAULT FOR TERMINATING LOCATIONS

PULL BOX INSTALLATION

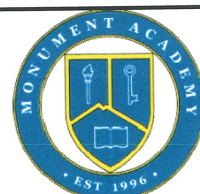


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**HDR** 5555 TECH CENTER DRIVE, SUITE 310  
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MONUMENT ACADEMY  
LIGHTING PLAN  
DETAILS

Designer: T. HOCHHALTER  
Detailer: D. MADDOCK  
Sheet Subset: LIGHTING

Structure Numbers  
Subset Sheets: 3 of 3

Project No./Code

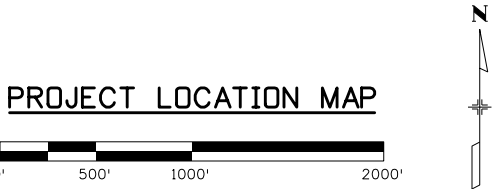
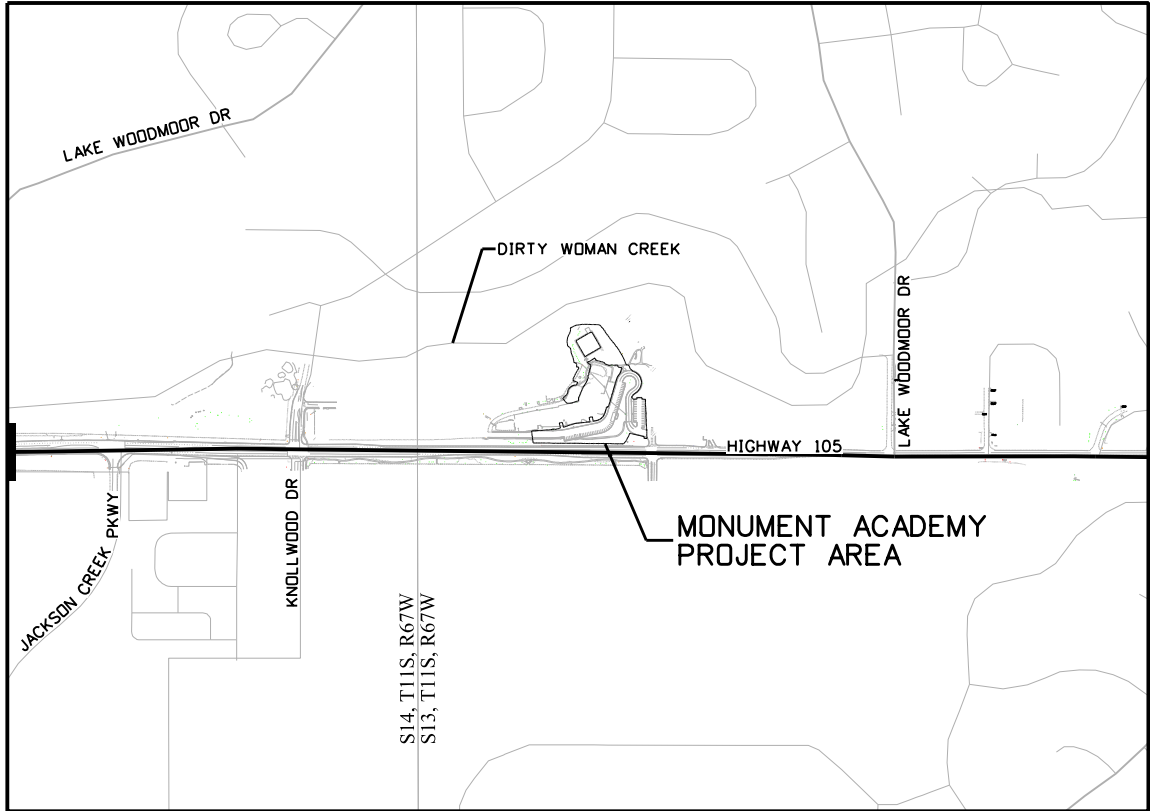
Sheet Number 54 of 81



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MONUMENT ACADEMY  
RECIRCULATION PLANS  
STORMWATER MANAGEMENT PLAN (SWMP)  
MONUMENT ACADEMY RECIRCULATION PLAN  
FRONT AND BACK OF SCHOOL ACCESS  
MONUMENT, EL PASO COUNTY, COLORADO

Applicant (Owner/ Designated Operator)	Name	
	Company	
	Address	
	Phone / e-mail	
SWMP Preparer	Name	Anessa Vance
	Company	HDR
	Address	5555 Tech Center Dr, Ste 310
	Address	Colorado Springs, CO 80919
	Phone / e-mail	719-272-8800 / anessa.vance@hdrinc.com
Qualified Stormwater Manager	Name	
	Company	
	Address	
	Phone / e-mail	
Contractor	Name	
	Company	
	Address	
	Phone / e-mail	



Index of Sheets		
Sheet Number(s)	Title	Subset / # of Sheets
55	SWMP Cover	SWMP / 1 of 9
56	Table of Contents	SWMP / 2 of 9
56	Affidavits	SWMP / 2 of 9
57 - 62	SWMP Notes	SWMP / 3 - 8 of 9
63	El Paso County GEC Notes	SWMP / 9 of 9
64-69	Site Maps	SWMP Map / 1-6 of 6
70-81	SWMP CM Details	SWMP Det / 1-12 of 12

Sheet Revisions		
Date:	Comments	Init.



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SECTION	SHEET NUMBER
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STORMWATER MANAGEMENT PLAN NOTES	_____
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2. SITE MAP COMPONENTS	_____
3. QUALIFIED STORMWATER MANAGERS	_____
4. STORMWATER MANAGEMENT CONTROLS	_____
5. DURING CONSTRUCTION	_____
6. INSPECTIONS	_____
7. MAINTENANCE	_____
8. RECORD KEEPING	_____
9. INTERIM, PERMANENT STABILIZATION	_____
10. PRIOR TO FINAL ACCEPTANCE	_____
11. NARRATIVES	_____
12. TABULATION OF QUANTITIES	_____
13. BIOLOGICAL IMPACTS AND DEWATERING	_____
14. NOTES	_____
EL PASO COUNTY GRADING AND EROSION CONTROL NOTES	_____
SWMP SITE MAPS - INITIAL	_____
SWMP SITE MAPS - INTERIM	_____
SWMP SITE MAPS - FINAL	_____
SWMP CONTROL MEASURE DETAILS	_____

DESIGN 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 PLAN.



ELIZABETH V. STATEN, P.E. # 38974

4/15/2022  
DATE

OWNER/ DEVELOPER'S STATEMENT:

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

NAME / TITLE:

BUSINESS NAME:

ADDRESS:

DATE

EL PASO COUNTY:

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

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

IN ACCORDANCE WITH 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.

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

DATE

Print Date: 4/13/2022		Sheet Revisions				As Constructed	MONUMENT ACADEMY SWMP / EROSION CONTROL NOTES			Project No./Code
File Name: SchoolAccess SWMP_NOTES.dgn		Date:	Comments	Init.		No Revisions:	Designer: M. CHAVEZ	Structure Numbers		
Horiz. Scale: None      Vert. Scale: None						Revised:	Detailer: M. CHAVEZ			
						Void:	Sheet Subset: SWMP	Subset Sheets: 2 of 9		Sheet Number 56 of 81
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All references to specification sections, subsections, and definitions are for CDOT Road and Bridge Construction Manual (2021).

The Contractor shall comply with all contractual requirements, and all requirements associated with the CDPS-SCP on this project. The SWMP Administrator for Construction shall update the SWMP to reflect current project site conditions.

Location or address of construction office: Monument Academy is located in S13, T11S, R67W just outside the limits of the Town of Monument, CO. The project is located north of Highway 105, and east of Knollwood Drive at 1150 Village Ridge Point, Monument, CO.

B. **PROJECT SITE DESCRIPTION:** This project is for the addition of new private internal roads to improve circulation of traffic within the school property. It also includes modular block walls, and storm system extensions. Construction activities include erosion control, and re-establishing vegetation.

1. Total area of construction site (LOC (PERMITTED AREA)): 3.44 acres
2. Total area of proposed disturbance (LDA): 1.45 acres
3. Total area of seeding: 0.67 acres

**F. EXISTING VEGETATION, INCLUDING PERCENT OF VEGETATIVE COVER:** The SWMP Administrator for Construction shall document existing vegetation where all work will be occurring.

Include a map or table showing locations, photos documenting pre-Construction vegetative cover, and methodology used to determine existing vegetative cover to SWMP tab 17:

Post-Construction Date of survey: \_\_\_\_\_ Percent Vegetative Cover: \_\_\_\_\_  
Description of vegetation: \_\_\_\_\_  
**Date of CDPS-SCP Closure:** \_\_\_\_\_  
The method used to determine pre-construction percent cover shall be used to determine post construction percent cover.  
Include map or table showing transect locations, photos documenting post-Construction vegetative cover, and methodology used to determine existing vegetative cover in SWMP Notebook.

**G. POTENTIAL POLLUTANTS SOURCES:** Refer to Potential Pollutant Sources in SWMP Section 4A. The SWMP Administrator for Construction shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25.

1. Outfall locations: See SWMP Site Maps for existing and proposed outfall locations. Stormwater system for the project is privately owned and not connected to a municipal storm sewer system. All discharges outfall overland to Dirty Woman Creek.
2. Names of immediate receiving water(s) on site: Dirty Woman Creek is located adjacent to the project site and is the receiving water for the entire site.
3. Ultimate receiving water(s): Dirty Woman Creek
4. Description of all stream crossings located within the Construction Site Boundary:

Location	Stream Name	Description Of Any Disturbed Upland Areas
n/a		

Discharge Description	Site Map #	Method Statement (Location)
Uncontaminated Springs	t.b.d.	
Concrete Washout Water (in-ground washout structure)#	t.b.d.	
Landscape Irrigation Return Flows	t.b.d.	
Discharges from Diversions of State Waters	t.b.d.	
Emergency Fire Fighting	t.b.d.	

#Concrete washout water associated with the washing of concrete tools and concrete mixer chutes can be discharged to the ground if site is managed accordingly to prevent the water from leaving the site as surface runoff or reaching receiving waters.

K. ALTERNATIVE DIVERSION CRITERIA: When applicable, The Contractor is to provide a method statement based on data provided by the Hydraulic Engineer. The alternative diversion must be approved by CDPHE's Water Quality Control Division prior to implementation. The diversion method must be designate to minimize the discharge of pollutants and prevent the potential for pollution or degradation to state waters as a result of the diverted flow through the diversion structure. In addition, the alternative diversion method must minimize the discharge of pollutants throughout the installation, implementation and removal of the diversion.]

L. ALTERNATIVE TEMPORARY STABILIZATION SCHEDULE: [If applicable, provide a description of the alternative temporary stabilization schedule. If temporary stabilization exceeds the 14-day schedule, then the SWMP must document the constraints necessitating the alternative schedule, provide the alternative schedule, and identify all the locations where the alternative schedule is applicable on the site map.]

## Pre-construction

**B. FLOW ARROWS THAT DEPICT STORMWATER FLOW DIRECTIONS ON-SITE, RUN-ON AND RUNOFF**  
DIRECTION: See SWMP Site Maps

C. ALL AREAS OF GROUND SURFACE DISTURBANCE: See SWMP Site Maps

D. AREAS OF CUT AND FILL: See SWMP Site Maps

E. AREAS USED FOR STORING AND STOCKPILING OF MATERIALS, STAGING AREAS (field trailer, fueling, etc.) and LOCATIONS OF ALL WASTE ACCUMULATION and BATCH PLANTS INCLUDING MASONRY MIXING STATIONS: See SWMP Site Maps. Project does not anticipate utilizing batch plants.



Print Date: 4/13/2022		<b>Sheet Revisions</b>				<b>As Constructed</b>		<b>MONUMENT ACADEMY SWMP / EROSION CONTROL NOTES</b>				<b>Project No./Code</b>	
File Name: SchoolAccess SWMP_CDDT TEMP01.dgn		Date:	Comments	Init.		No Revisions:							
Horiz. Scale: None      Vert. Scale: None													
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800						Revised:		Designer:    M. CHAVEZ	Structure Numbers				
						Void:		Detailer:     M. CHAVEZ					
								Sheet Subset:    SWMP	Subset Sheets:    3    of    9		Sheet Number <b>57 of 81</b>		



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F. LOCATION OF ALL STRUCTURAL CONTROL MEASURES IDENTIFIED IN THE SWMP: See SWMP Site Maps

G. LOCATION OF NON-STRUCTURAL CONTROL MEASURES AS APPLICABLE IN THE SWMP: See SWMP Site Maps

H. SPRINGS, STREAMS, WETLANDS, DIVERSIONS, AND OTHER STATE WATERS, INCLUDING AREAS THAT REQUIRE PRE-EXISTING VEGETATION BE MAINTAINED WITHIN 50 FEET OF A RECEIVING WATER: See SWMP Site Maps

I. LOCATIONS OF ALL STREAM CROSSING LOCATED WITHIN THE CONSTRUCTION SITE BOUNDARY: See SWMP Site Maps

J. PROTECTION OF TREES, SHRUBS, SENSITIVE HABITAT, AND CULTURAL RESOURCES: See SWMP Site Maps

K. LOCATIONS WHERE ALTERNATIVE TEMPORARY STABILIZATION SCHEDULES APPLY: \_\_\_\_\_

3. **QUALIFIED STORMWATER MANAGERS:**

A. SWMP ADMINISTRATOR FOR DESIGN: CDOT Certified Individual responsible for developing SWMP Plan Sheets and SWMP Site Maps during the design phase.

Name/Title	Contact Information	CDOT Certification #
Anessa Vance Drainage Designer	(405) 301-9386 anessa.vance@hdrinc.com	4F847EC5

B. SWMP ADMINISTRATOR FOR CONSTRUCTION: (As defined in Section 208) The Contractor shall designate a SWMP Administrator for Construction upon accepting co-permittee of the permit. The SWMP Administrator for Construction shall become the operator for the SWMP and assume responsibility for all design changes to the SWMP implementation and maintenance in accordance to 208.03, the SWMP shall remain the property of CDOT. The SWMP Administrator for Construction shall be responsible for implementing, maintaining, and revising SWMP, including the title and contact information. The activities and responsibilities of the SWMP Administrator for Construction shall address all aspects of the project's SWMP. (Update the information below for each new SWMP Administrator for Construction) (A copy of TECS Certification must be included in the SWMP.)

Name/Title	Contact Information (phone & email)	Certification #	Start Date	Engineer Approval

C. EROSION CONTROL INSPECTOR: (As defined in Section 208) The Contractor may designate an Erosion Control Inspector. The Erosion Control Inspector shall complete duties in accordance with subsection 208.03 (c) (Copy of TECS Certification must also be included in the SWMP.)

Name/Title	Contact Information (phone & email)	Certification #	Start Date	Engineer Approval

4. **STORMWATER MANAGEMENT CONTROLS FOR FIRST CONSTRUCTION ACTIVITIES**

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. POTENTIAL POLLUTANT SOURCES:

Evaluate, identify, locate, and describe all potential sources of pollutants at the site in accordance with subsection 107.25, CDPS-SCP and place in the SWMP. All control measures related to potential pollutants shall be shown on the SWMP Site Map by the Contractor's SWMP Administrator for Construction.

B. OFFSITE DRAINAGE (RUN ON WATER):

Describe and record control measures on the SWMP Site Map that have been implemented to address off site run-on water in accordance with subsection 208.03.

C. VEHICLE TRACKING CONTROL:

Control measures shall be implemented in accordance with subsection 208.04.

D. PERIMETER CONTROL:

- Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. Perimeter control shall be in accordance with subsection 208.04
- Perimeter control may consist of berms, silt fence, erosion logs, existing landforms, or other control measures as approved.

5. **DURING CONSTRUCTION**

RESPONSIBILITIES OF THE SWMP ADMINISTRATOR FOR CONSTRUCTION: Considered a "living document", the SWMP is continuously reviewed and modified throughout the construction phases as a part of the overall process of evaluating and managing stormwater quality issues at the site. During construction, SWMP Administrator for Construction shall add, update, or amend the items A-G below as needed in accordance with subsection 208.03, and/or when there is a change in design, construction, O&M of the site which would require the implementation of new or revised control measures, or if the control measure proves to be ineffective in achieving the general objective of controlling pollutants in stormwater discharges associated with construction activity, or when control measures are no longer necessary and are removed.

During construction, indicate how items that were not addressed during design are being handled in construction. If items are covered in other sections of the SWMP, indicate below what section the discussion takes place.

A. MATERIALS HANDLING AND SPILL PREVENTION AND RESPONSE PLAN: prior to construction commencing the Contractor shall submit a Spill Response Plan, see subsection 208.06. Materials handling shall be in accordance with subsection 208.06.

B. OTHER CDPS PERMITS: List applicable CDPS permits associated with the permitted site and activities.

C. STOCKPILE MANAGEMENT: Shall be done in accordance with subsections 107.25 and 208.07

D. CONCRETE WASHOUT: Concrete washout water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.

E. SAW CUTTING: Shall be done in accordance with subsections 107.25, 208.04, 208.05

F. STREET SWEEPING: Shall be done in accordance with subsection 208.04

G. TOILETS: Portable toilets will be located a minimum of 10 feet from stormwater inlets and 50 feet from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills.

6. **INSPECTIONS**

- Water Quality Inspections shall be in accordance with subsection 208.03(c).
- Permanent Stabilization Inspections shall be in accordance with subsections 207.03 and 212.05.

7. **CONTROL MEASURE MAINTENANCE**

Maintenance shall be in accordance with subsection 208.04(f).

8. **RECORD KEEPING**

Records shall be kept in accordance with subsection 208.03(d).

9. **INTERIM, PERMANENT STABILIZATION and LONG TERM STORMWATER MANAGEMENT**

The Contractor shall comply with all interim stabilization and permanent stabilization requirements in accordance with subsection 208.04(e). Final vegetative cover shall be at least 70% of pre-disturbed levels.



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A. **SEEDING PLAN:** The following seed mix(es) and rates and seeding method as shown on the Permanent Stabilization Site Maps shall be used:

**SEEDING (NATIVE) Drill**

COMMON NAME	BOTANICAL NAME	LBS. PLS PER ACRE
Sideoats grama	<i>Bouteloua curtipendula</i> var. <i>Vaughn</i>	2.0
Blue grama	<i>Bouteloua gracilis</i> var. <i>Hachita</i>	1.5
Little bluestem	<i>Schizachyrium scoparium</i> var. <i>Pastura</i>	3.0
Western wheatgrass	<i>Pascopyrum smithii</i> var. <i>Arriba</i>	5.0
Green needlegrass	<i>Stipa viridula</i>	2.0
Junegrass	<i>Koeleria macrantha</i>	0.3
Indiangrass	<i>Sorghastrum nutans</i> var. <i>Holt</i>	3.0
Switch grass	<i>Panicum virgatum</i> v. <i>Nebraska 28</i>	2.0
Smooth aster	<i>Symphyotrichum laeve</i>	0.1
Purple prairie clover	<i>Dalea purpurea</i>	0.5
Blanketflower	<i>Gaillardia aristata</i>	1.0
Blue flax	<i>Linum lewisii</i>	1.0
Woods' rose	<i>Rosa woodsii</i>	1.0
Rabbitbrush	<i>Ericameria nauseosa</i>	0.1
Threeleaf sumac	<i>Rhus trilobata</i>	0.5
Snowberry	<i>Symphoricarpos albus</i>	0.5
Chokecherry	<i>Prunus virginiana</i>	0.5
Winter wheat (sterile)	<i>Triticum aestivum</i>	3.0
Common oat (sterile)	<i>Avena sativa</i>	3.0
Total		30.0

**SEEDING (WETLANDS) Broadcast**

COMMON NAME	BOTANICAL NAME	PERCENT OF MIX	LBS. PLS PER ACRE
Arctic Rush	<i>Juncus arcticus</i>	15	0.05
Big bluestem	<i>Andropogon gerardii</i>	10	2.5
Canada wildrye	<i>Elymus canadensis</i>	10	3.0
Common spikerush	<i>Eleocharis palustris</i>	10	0.6
Softstem bulrush	<i>Schoenoplectus tabernaemontani</i>	10	0.6
Switchgrass	<i>Panicum virgatum</i>	10	1.0
Water sedge	<i>Carex aquatilis</i>	20	1.5
Western wheatgrass	<i>Pascopyrum smithii</i>	10	3.0
Showy milkweed	<i>Asclepias speciosa</i>	5	2.5
Total		100	14.75

B. **SEEDING APPLICATION METHOD:** The following seeding methods shall be used for all areas shown on the Permanent Stabilization Site Maps. Soil compaction shall be minimized for areas where permanent stabilization will be achieved through vegetative cover.

SEEDING METHOD (subsection 212.05)	ACRE
Seeding (Native) Drill, CDOT Pay Item 212-00706	0.63
Seeding (Wetland) Broadcast, CDOT Pay Item 212-00711	0.04
TOTAL	

C. **SOIL STABILIZATION METHODS:** Minimum soil stabilization methods (attached mulch) for all disturbances to receive seeding.

1. Apply certified weed free hay or certified weed free straw and mechanically crimp into the soil in combination with natural mulch tackifier in accordance with Section 213.
2. Install Soil Retention Blankets in accordance with Standard Plan M-216-1 and Section 216.

D. **SPECIAL REQUIREMENTS:**

1. Soil amendments, seedbed preparation, and permanent stabilization mulching shall be accomplished within four working days of placing the topsoil on the de-compacted civil subgrades. If placed topsoil

is not mulched with permanent stabilization mulch within four working days, the Contractor shall complete interim stabilization methods in accordance with subsection 208.04(e) at no additional cost to the Department.

2. Complete permanent stabilization mulching within 24 hours of hydraulic application of native seed.
3. The Contractor shall submit a proposed Permanent Stabilization Phasing Plan to the Engineer for approval showing how implementation of SWMP Permanent Stabilization Plans will minimize damage to seeded areas.

E. **SOIL AMENDMENT REQUIREMENTS:** Minimum amendment material requirements for all disturbances to receive seeding.

**0.63 Total Acres of Seeding (Native) Drill**

Seeding (Native) Drill Pay Item 212-00706	Pay Item	Description	Amount/Acre	Units	Total For This Method
	212-00700	Organic Fertilizer	600	Pounds	378
	212-00701	Compost (Mechanically Applied)	65	CY	41
	212-00703	Humate	200	Pounds	126
	212-00704	Mycorrhizae	0	Pounds	0
	212-00705	Elemental Sulfur	0	Pounds	0

**0.04 Total Acres of Seeding (Wetland) Broadcast**

Seeding (Wetland) Broadcast Pay Item 212-00711	Pay Item	Description	Amount/Acre	Units	Total For This Method
	n/a	n/a	n/a	n/a	n/a
Soil amendments are not anticipated to be required for wetland seeding. Existing wetland topsoils shall be salvaged by excavating up to 12" depth of topsoil and stockpiling the material in an approved area and protected from sediment transport and nutrient leaching. Storage time within the stockpile shall be as short as possible.					

F. **RESEEDING OPERATIONS/CORRECTIVE STABILIZATION:**

Prior to partial acceptance.

1. All seeded areas shall be reviewed during the 7-day inspections by the SWMP Administrator for Construction and or Erosion Control Inspector for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be re-graded, seeded, and have the designated mulching applied as necessary, at no additional cost to the project.
2. The Contractor shall maintain seeding/mulch/tackifier/blanket/TRM, mow to control weeds or apply herbicide to control weeds in the seeded areas until Partial Acceptance of the stormwater construction work.

**10. PRIOR TO PROJECT FINAL ACCEPTANCE**

- A. When directed by the Engineer, removal and disposal of temporary control measures shall be included in the cost of work.
- B. At the end of the project, all ditch checks shall consist of either temporary erosion logs (or equivalent) or permanent riprap.
- C. Refer to Specification 208.10 for Items to be completed prior to requesting partial acceptance of water quality work.



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11. NARRATIVES

Control Measure Matrixes During Construction:

- Control measure narratives have been included for the CDOT Standard Specifications and Standard Plan M-208 and M-216 along with any non-standard control measures approved during the design process. If a Non-Standard Control Measure not included in the SWMP is proposed and approved by the Engineer the SWMP Administrator for Construction shall do the following: Place an "X" in the column for non-standard and complete a Non-Standard Control Measure Specification and Narrative covering the what, when, where and why the control measure is being used shall be add to the SWMP. The appropriate "X" shall also be added to the implementation phase(s).
- The SWMP Administrator for Construction shall place an "X" in the column In Use On Site when the control measure has been installed.
- A "B" in the Initial Activities Column indicates that the control measure shall be installed **before** construction activity starts. Locations and quantities will be discussed during the Environmental Pre-Construction Conference.

STRUCTURAL Control Measures that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to the following:

APPLICATION, CONTROL MEASURE	NARRATIVE	M- 208 STANDARD or "X" for NON- STANDARD	IN USE ON SITE	CONTROL MEASURE IMPLEMENTATION PHASE		
				INITIAL ACTIVITIES	INTERIM ACTIVITIES	PERMANENT STABILIZATION
PROTECTION OF EXISTING WETLANDS <i>Fence (plastic) and erosion logs</i>	Fence (plastic) shall be placed in combination with erosion logs to prevent encroachment of construction traffic and sediment into state waters prior to start of construction disturbances. Fence (plastic) shall be placed adjacent to the wetlands; erosion logs shall be placed between the plastic fence and disturbance area. Logs shall be placed to direct flows away from or filter water running into wetlands from disturbance areas.			B	X	
PROTECTION OF EXISTING TREES/LANDSCAPING <i>Fence (plastic)</i>	Fence (plastic) shall be used in areas indicated in the plans to prevent encroachment of construction traffic and sediment for the protection of sensitive habitat, mature trees and/or existing landscaping prior to start of construction disturbances.			B	X	
CHECK DAM/DITCH CHECK <i>Erosion log, silt berm, silt dike, rock check dam</i>	Placed in ditches immediately upon completion of ditch grading to reduce velocity of runoff in ditch. For existing ditches, place prior to start of construction disturbances.	M-208		X	X	
Storm Drain Inlet Protection In Paved Roadways (Type 1, 2 and 3 as shown on M-208-1, sheet 5 of 11)	Manufactured storm drain inlet protection placed prior to construction disturbances as detailed in M-208-1, to protect existing inlets or immediately upon completion of new inlets to prevent sediment from entering the inlet throughout construction.	M-208		B	X	X
Storm Drain Inlet Protection In Native Seed Areas (M-604 Standard Inlets Type C and D)	Erosion logs or aggregate bags placed around inlet grate to prevent sediment from entering inlet. Place prior to construction disturbances to protect existing inlets or immediately upon completion of new inlets.	M-208				
CULVERT INLET/OUTLET PROTECTION <i>Erosion logs, aggregate bags</i>	Placed at mouth of culvert inlets and over top of culvert at inlet and outlet where disturbance may be occurring adjacent to pipe to prevent sediment laden water from entering pipe or drainage. Place prior to the start of construction disturbances.	M-208		B	X	X
TYPE C, TYPE D AND TYPE 13 PROTECTION <i>Erosion logs, aggregate bags, erosion bales</i>	Placed around inlet grate or slope and ditch paving to prevent sediment from entering inlet. Place prior to the start of construction disturbances.	M-208		B	X	X
STOCKPILE PROTECTION <i>Temporary berm, erosion logs, aggregate bags*</i>	Placed within specified distance, in accordance with subsection 208.06, from toe to contain sediment around stockpile. *Aggregate bags are easily moved and replaced for access during the work day. Place prior to start of stockpiling, increase control as the stockpile increases size.	M-208			X	
TOE OF FILL PROTECTION <i>Erosion logs, temporary berm, silt fence, topsoil windrow*</i>	Place prior to slope/embankment work to capture sediment and protect and delineate undisturbed areas. *Can be used to stockpile topsoil for salvage.	M-208		X	X	
PERIMETER CONTROL <i>Erosion logs, silt fence, temporary berm, topsoil windrow*</i>	Placed prior to construction commencing to address potential run-on water from off site, and to divert around disturbed area. *Can be used to stockpile topsoil for salvage.	M-208		B	X	
SEDIMENT CONTROL/ SLOPE CONTROL <i>Silt fence, erosion logs</i>	Placed on the contour of a slope to contain and slow down construction runoff. Place prior to the start of construction disturbances.	M-208		X	X	
TEMPORARY SEDIMENT TRAP	Used to capture sediment laden runoff from disturbed areas < 5 acres during construction. Place prior to the start of construction disturbances. Outlets that withdraw water from or near the surface may be installed when discharging from basins and impoundments.	M-208			X	
EMBANKMENT PROTECTION OR TEMPORARY SLOPE DRAIN	Placed as a conduit or chute to drain runoff down slope and to prevent erosion of slope.	M-208			X	X
OUTLET PROTECTION <i>Riprap, or approved other</i>	Material placed as an energy dissipater to prevent erosion at outlet structure.	M-601-12			X	X
CONCRETE WASHOUT <i>In-ground or fabricated</i>	Construction control, used for waste management of concrete and concrete equipment cleaning. Place prior to the start of concrete activities.	M-208		X	X	
VEHICLE TRACKING PAD	Source control, placed to prevent tracking of sediment from disturbed area to offsite surface. Place prior to the start of construction disturbances.	M-208		B	X	



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DEWATERING (Contractor is responsible for obtaining a permit from Colorado Dept. of Health and Environment.)	Shall be done in such a manner to prevent potential pollutants from entering state waters.			X	X	
CLEAN WATER DIVERSION	Placed to divert clean surface or groundwater around the disturbance area to prevent it from mixing with construction runoff.			X	X	
OTHER						

**NON-STRUCTURAL Control Measures** that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to: Erosion control devices are used to limit the amount of soil loss on site. Sediment control devices are designed to capture sediment on the project site. Construction controls are control measures related to construction access and staging. Control Measure locations are indicated on the SWMP Site Map.

**\* Use of vegetative buffer strip requirements.** The CDPHE Water Quality Control Division Technical Memorandum dated August 27, 2015 clarifies the requirements for utilization of existing vegetation as a buffer type of sediment control measure, while maintaining compliance with the CDPS permit for Stormwater Discharges Associated with Construction Activity – CDPS Permit No. COR4000000. In general, the division does not recommend that vegetated buffers be implemented as a sediment removal control measure for runoff from disturbed areas at construction sites, unless implemented as a “finishing” component of a treatment train comprised of additional, adequate up-gradient Control Measures. The entire memorandum can be found at: <https://www.colorado.gov/pacific/sites/default/files/Vegetative%20Buffer%20Memo.pdf>

APPLICATION, CONTROL MEASURE	NARRATIVE	M- STANDARD or "For NON- STANDARD	IN USE ON SITE	CONTROL MEASURE IMPLEMENTATION PHASE		
				INITIAL ACTIVITY	INTERIM ACTIVITIES	PERMANENT STABILIZATION
* VEGETATIVE BUFFER STRIP <i>Fence (plastic)</i>	Finishing component for filtering sediment-laden runoff from disturbance area. Area within CDOT ROW or temporary easement to be identified on SWMP prior to construction starting.			X	X	X
GRADING APPLICATIONS (LANDFORM)	Existing or created landforms may be used as a control measure if they prevent sediment from entering or leaving the disturbance area. If a landform directs flow of water to a concentrated outfall point, the outfall point shall be protected to prevent erosion. Area to be identified on SWMP prior to construction starting.	M-208		X	X	
TOPSOIL MANAGEMENT STOCKPILE/SALVAGE <i>Windrow or stockpile</i>	Prior to any site disturbance work commencing, existing topsoil shall be scraped to a depth six inches or as specified, and placed in stockpiles or windrows. Upon completion of final grading, topsoil shall be evenly distributed over embankment to a depth of six inches or as specified.	M-208		X	X	X
SURFACE ROUGHENING / GRADING TECHNIQUES	Temporary stabilization of disturbance and to minimize wind and erosion.				X	
SEEDING (TEMPORARY)	Temporary stabilization used for over wintering of disturbance or used to control erosion for areas scheduled for future construction.				X	
BONDED FIBER MATRIX or MULCHING (HYDRAULIC)	Not to be used in areas of concentrated flows, i.e. ditch lines. To be for either Interim or Permanent Stabilization placed as a surface cover for erosion control. May be used as surface cover when work is temporarily halted and as approved by the Engineer for stockpiles.				X	
Straw or Hay MULCH/MULCH TACKIFIER	Interim or Permanent Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as Interim Stabilization as a surface cover when work is temporarily halted and as approved by the Engineer				X	X
SPRAY-ON MULCH BLANKET (Not to be used in areas of concentrated flows, i.e. ditch lines.)	Interim or Permanent Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as temporary surface cover when work is temporarily halted and as approved by the Engineer				X	X
SEEDING PERMANENT (NATIVE PERENNIAL)	Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.					X
SOIL RETENTION BLANKET (SRB)	Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.	M-216			X	X
TURF REINFORCEMENT MAT (TRM)	Permanent Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas. Placed in channels or on slopes for erosion control, channel liner and seeding establishment.	M-216				X
Sweeping	Source control, used to remove sediment tracked onto paved surfaces and to prevent sediment from entering drainage system. Sweep daily and at the end of the construction shift as needed. Kick brooms shall not be permitted.			X	X	X
OTHER						



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12. TABULATION OF STORMWATER QUANTITIES

- A. Control Measure sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Labor). All other control measure maintenance shall be included in the cost of the control measure.
- B. This project includes pay item 214-00008 Extended Landscape Preservation. Refer to the project specifications for all work to be performed during the extended landscape maintenance period for this project.
- C. CDOT Pay Item shown for information only. Item Description corresponds to pay items listed in Statement of Approximate Quantities (SoAQ).

CDOT Pay Item	Description	Pay Unit	Initial Const.	Interim Const.	Permanent Stabilization	*Total Quantity
207-00702	Topsoil (Offsite)	CY			340	340
207-00703	Topsoil (Wetland)	CY			21	21
208-00002	Erosion Log Type 1 (12 inch)	LF	950	650		1600
208-00020	Silt Fence	LF		80		80
208-00035	Aggregate Bag	LF	150	200		350
208-00045	Concrete Washout Structure	Each		2		2
208-00070	Vehicle Tracking Pad	Each		2		2
208-00071	**Maintenance Aggregate (Vehicle Tracking Pad)	CY		10		10
212-00700	Organic Fertilizer	Pounds			500	500
212-00701	Compost (Mechanically Applied)-	CY			55	55
212-00703	Humate	Pounds			165	165
212-00704	Mycorrhizae	Pounds			1	1
212-00705	Elemental Sulfur	Pounds			1	1
212-00706	Seeding (Native) Drill	Acre		0.15	0.65	1.0
212-00709	Seeding (Wetland) Broadcast	Acre			.05	0.10
213-00003	Mulching (Weed Free)	Acre		0.2	0.8	1.0
213-00061	Mulch Tackifier	LB		40	160	200
214-00008	Extended Landscape Preservation	LS				1
216-00222	Soil Retention Blanket (Coconut) (Biodegradable Class 2)	SY		250	500	750
607-11525	Fence (Plastic)	LF	625	625		1250
700-90026	F/A Landscaping	FA			1	1

\*It is anticipated that additional control measures and control measure quantities not shown on the SWMP Site Maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsections 208.03 and 208.04. Quantities for all control measures shown above are estimated, and have been increased for unforeseen conditions and normal control measure life expectancy. Quantities shall be

adjusted according to the conditions encountered in the field as directed and approved by the Engineer. Payment shall be for the actual work completed and material used.  
\*\*CDOT Pay Item 208-00071 is included for anticipated maintenance of vehicle tracking pads based on the service life of the control measure in the field. The use of the material shall be directed and approved by the Engineer.  
\*\*\* F/A refers to CDOT's Force Account Pay Items.

13. BIOLOGICAL IMPACTS and DEWATERING

- A. ENVIRONMENTAL IMPACTS:
- Wetland Impacts: YES
  - Stream Impacts: NO
  - Threatened and Endangered Species: YES. Contractor to coordinate with the biologist or environmental specialist. Identify sensitive habitat/areas impacted by the project or areas to avoid by construction activities with orange plastic construction fencing.
- B. DEWATERING: (Not covered under the CDPHE guidance document Low Risk Discharge Guidance Discharges of Uncontaminated Groundwater to Land):  
<https://www.colorado.gov/pacific/sites/default/files/WQ%20LOW%20RISK%20GW.pdf>
- Dewatering: Refer to other environmental permits in accordance with subsection 107.02 and the permits contained in Tab 16 of the SWMP.
  - If groundwater does not meet water quality standards for receiving water a separate CDPS Dewatering Permit shall be obtained by the Contractor from CDPHE in accordance with subsections 107.02 and 107.25.

14. NOTES

- A. All references to specification sections, subsections, and definitions are for CDOT Road and Bridge Construction Manual (2021).
- B. Tabulation of Quantities shown by project phase in project SoAQ.
- C. Seeding and related quantities multiplied by 1.2 and rounded to account for unforeseen conditions.



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File Name: School Access SWMP_CDOT_TEMP06.dgn			Date:	Comments	Init.		No Revisions:						
Horiz. Scale: None      Vert. Scale: None													
 5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919    PHONE: 719-272-8800							Revised:		Designer: M. CHAVEZ	Structure Numbers			
							Detailer: M. CHAVEZ						
							Void:	Sheet Subset: SWMP	Subset Sheets: 8 of 9	Sheet Number 62 of 81			

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STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS:

REVISED OCTOBER 2021

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 TO REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR AND 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 MAY CONTRIBUTE POLLUTANTS TO STORMWATER. TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED 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 PLAN 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 EFFECT THE HYDROLOGY OR HYDRAULICS OF A 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 SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
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 RUNOFF TO 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, 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 ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
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 AND PREVENT ANY SPILLED MATERIAL 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, 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 PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
27. A WATER SOURCE SHALL BE AVAILABLE ON-SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY SHANNON & WILSON INC, FEBRUARY 2022, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART.

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



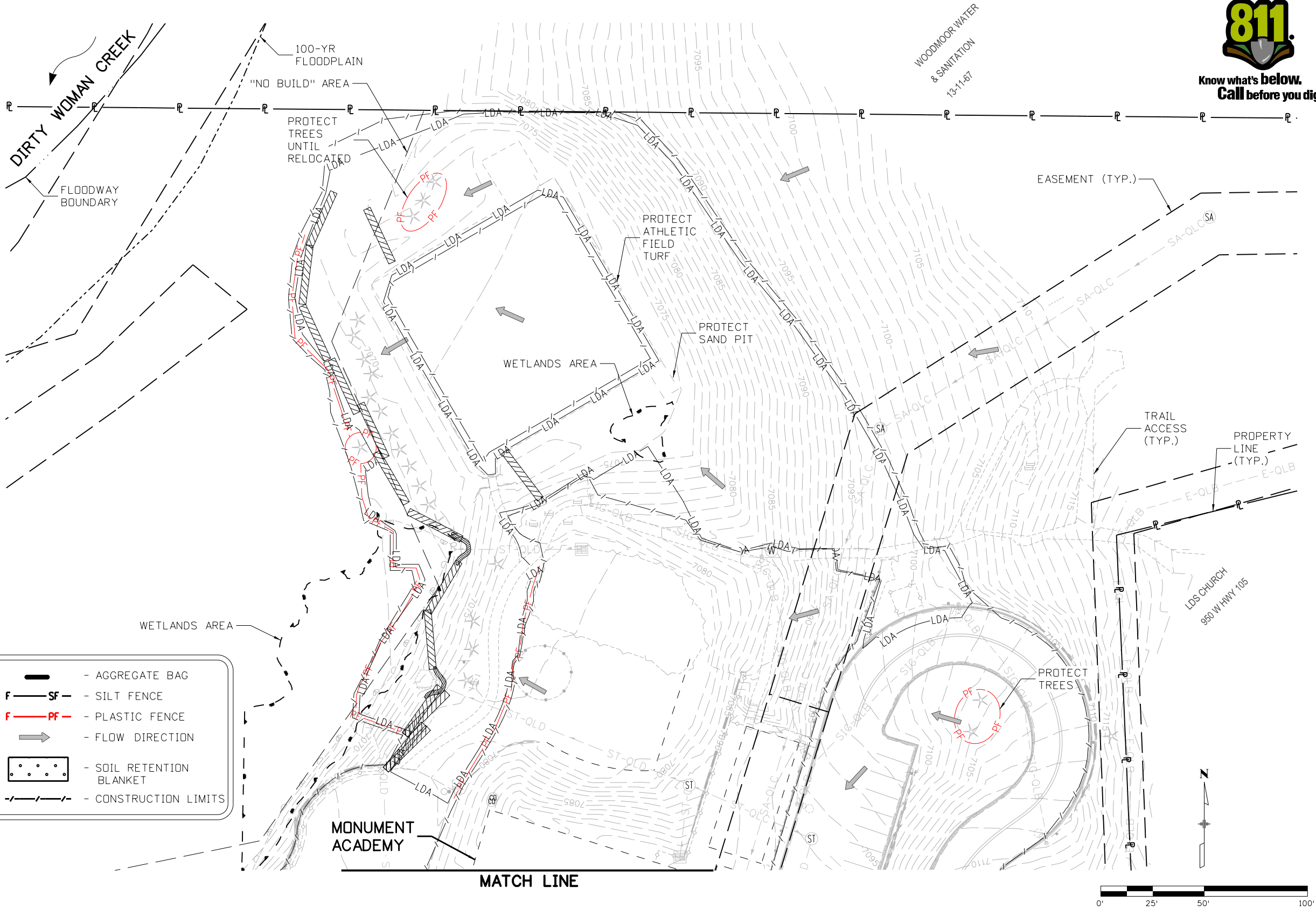
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NOTES:

1. SEE SWMP NOTES AND EROSION CONTROL NOTES FOR ADDITIONAL INFORMATION.
2. SEE SWMP/EROSION CONTROL BMP DETAILS FOR ADDITIONAL INFORMATION.
3. LOCATIONS FOR VEHICLE TRACKING PADS, CONCRETE WASHOUT AREA, SOIL STOCKPILES AND TEMPORARY DISPOSAL AREAS TO BE DETERMINED BY CONTRACTOR.
4. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL DOCUMENT EXISTING VEGETATION WHERE ALL WORK WILL BE OCCURRING BY DESCRIPTION AND PERCENT OF VEGETATIVE COVER.
5. NO BATCH PLANTS WILL BE UTILIZED ON SITE.



Know what's below.  
Call before you dig.

	- EROSION LOG (12'') CULVERT PROTECTION		- AGGREGATE BAG
	- EROSION LOG (12'') INLET PROTECTION		- SILT FENCE
	- EROSION LOG (12'') SEDIMENT CONTROL		- PLASTIC FENCE
	- RIPRAP, SEE DRAINAGE PLANS		- FLOW DIRECTION
	- LIMITS DISTURBED AREA		- SOIL RETENTION BLANKET
			- CONSTRUCTION LIMITS

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COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800

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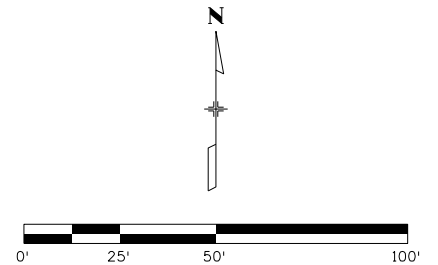
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As Constructed
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Designer: M.CHAVEZ	Structure Numbers	
Detailer: M.CHAVEZ		
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NOTES:

1. SEE SWMP NOTES AND EROSION CONTROL NOTES FOR ADDITIONAL INFORMATION.
2. SEE SWMP/EROSION CONTROL BMP DETAILS FOR ADDITIONAL INFORMATION.
3. LOCATIONS FOR VEHICLE TRACKING PADS, CONCRETE WASHOUT AREA, SOIL STOCKPILES AND TEMPORARY DISPOSAL AREAS TO BE DETERMINED BY CONTRACTOR.
4. NO BATCH PLANTS WILL BE UTILIZED ONSITE.



Know what's below.  
Call before you dig.

- EROSION LOG (12")  
CULVERT PROTECTION

- EROSION LOG (12")  
INLET PROTECTION

- EROSION LOG (12")  
SEDIMENT CONTROL

- RIPRAP, SEE  
DRAINAGE PLANS

- LIMITS DISTURBED AREA

- AGGREGATE BAG

- SILT FENCE

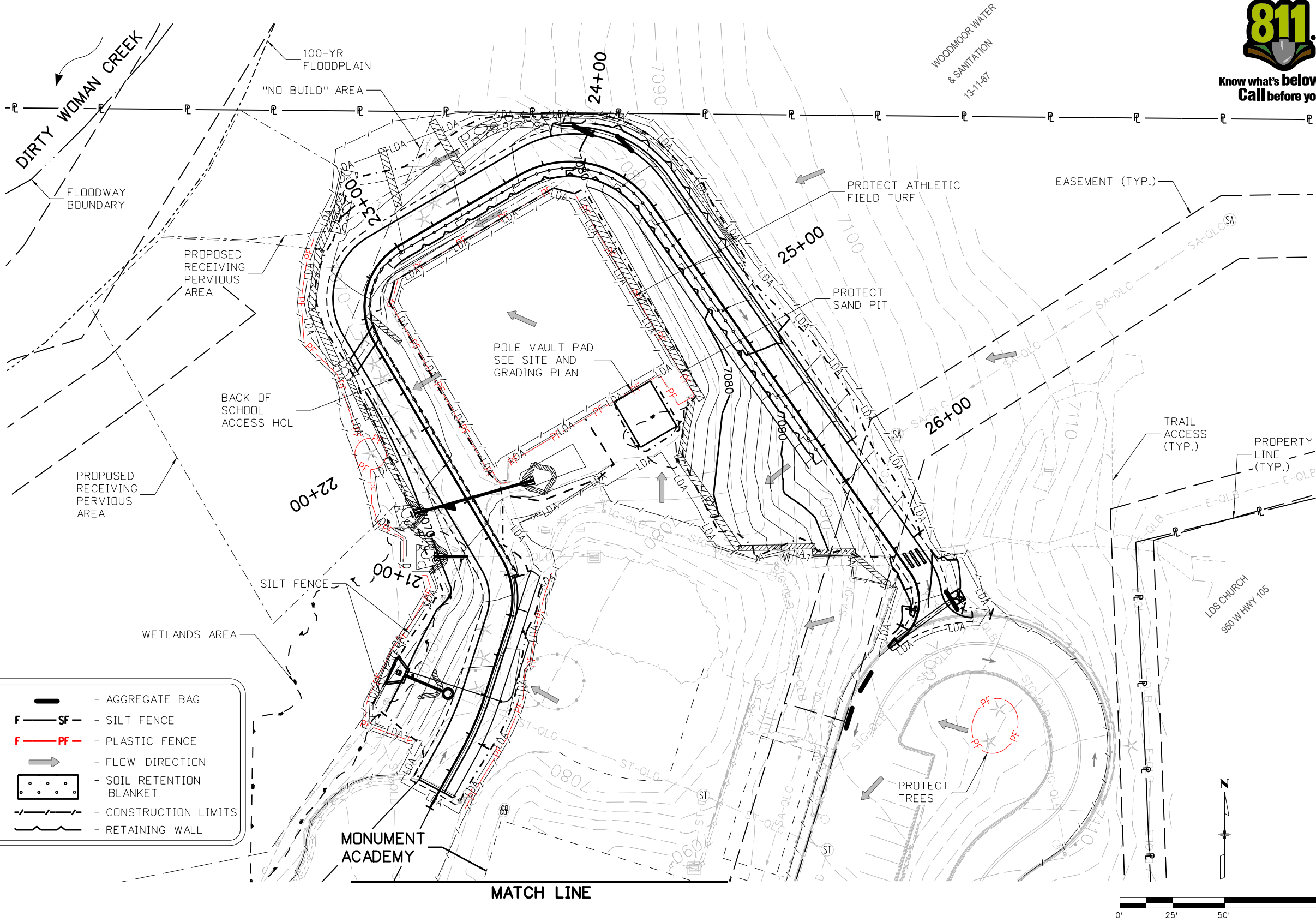
- PLASTIC FENCE

- FLOW DIRECTION

- SOIL RETENTION  
BLANKET

- CONSTRUCTION LIMITS

- RETAINING WALL



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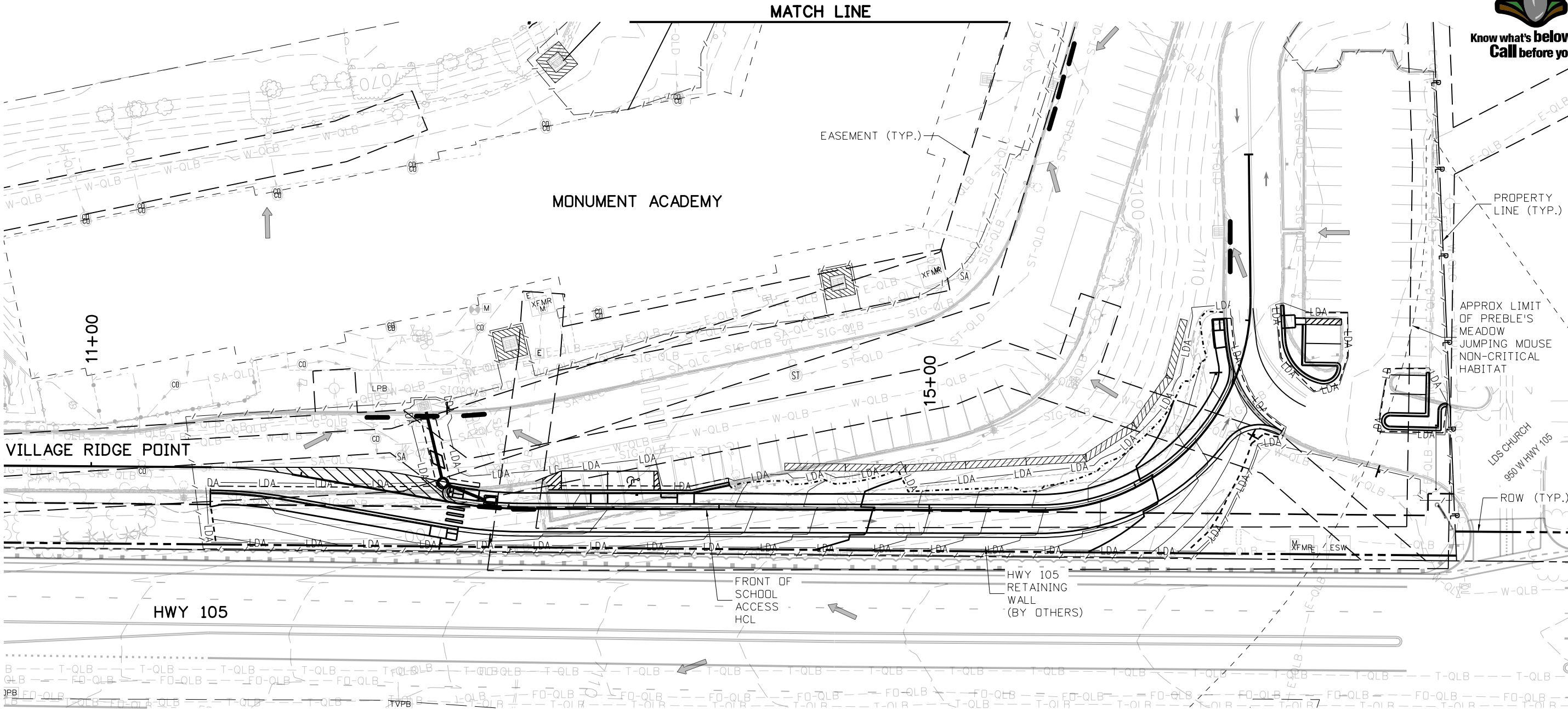
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**NOTES:**

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- EROSION LOG (12")  
CULVERT PROTECTION

- EROSION LOG (12")  
INLET PROTECTION

- EROSION LOG (12")  
SEDIMENT CONTROL

- RIPRAP, SEE  
DRAINAGE PLANS

- LIMITS DISTURBED AREA

- AGGREGATE BAG

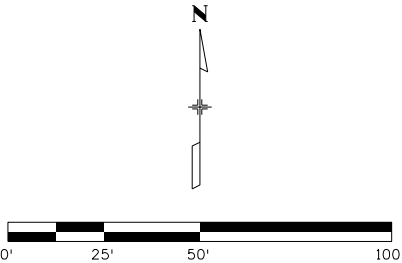
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- FLOW DIRECTION

- SOIL RETENTION  
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- CONSTRUCTION LIMITS



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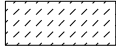
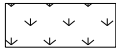

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NOTES:

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4. SEE SITE AND GRADING PLAN SHEETS FOR ADDITIONAL INFORMATION.



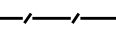

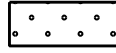
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- RIPRAP, SEE DRAINAGE PLANS

- SEEDING (WETLANDS)

- SEEDING (NATIVE)


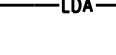


- SOIL RETENTION BLANKET

- FLOW DIRECTION

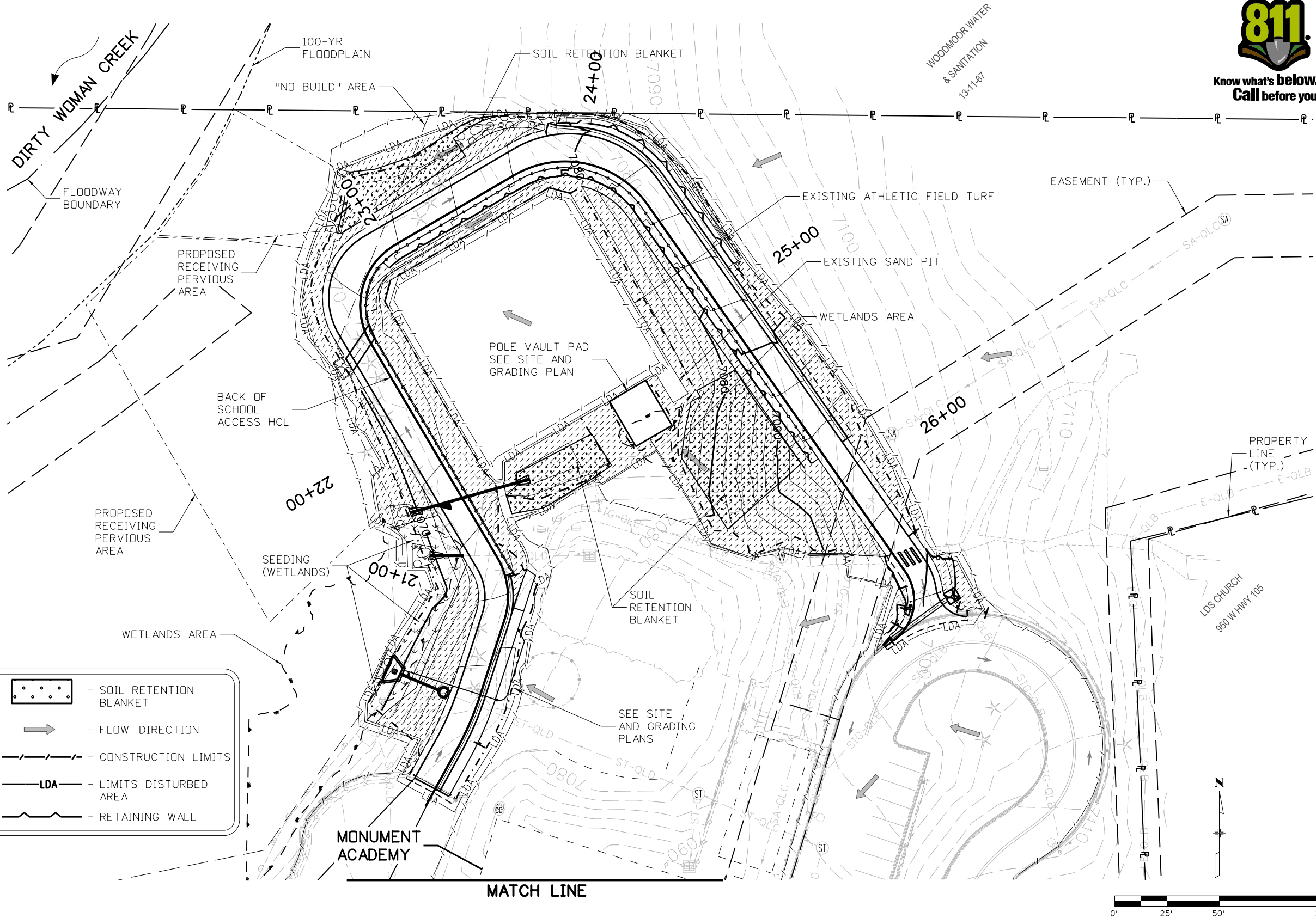
- CONSTRUCTION LIMITS

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- LIMITS DISTURBED AREA


- RETAINING WALL



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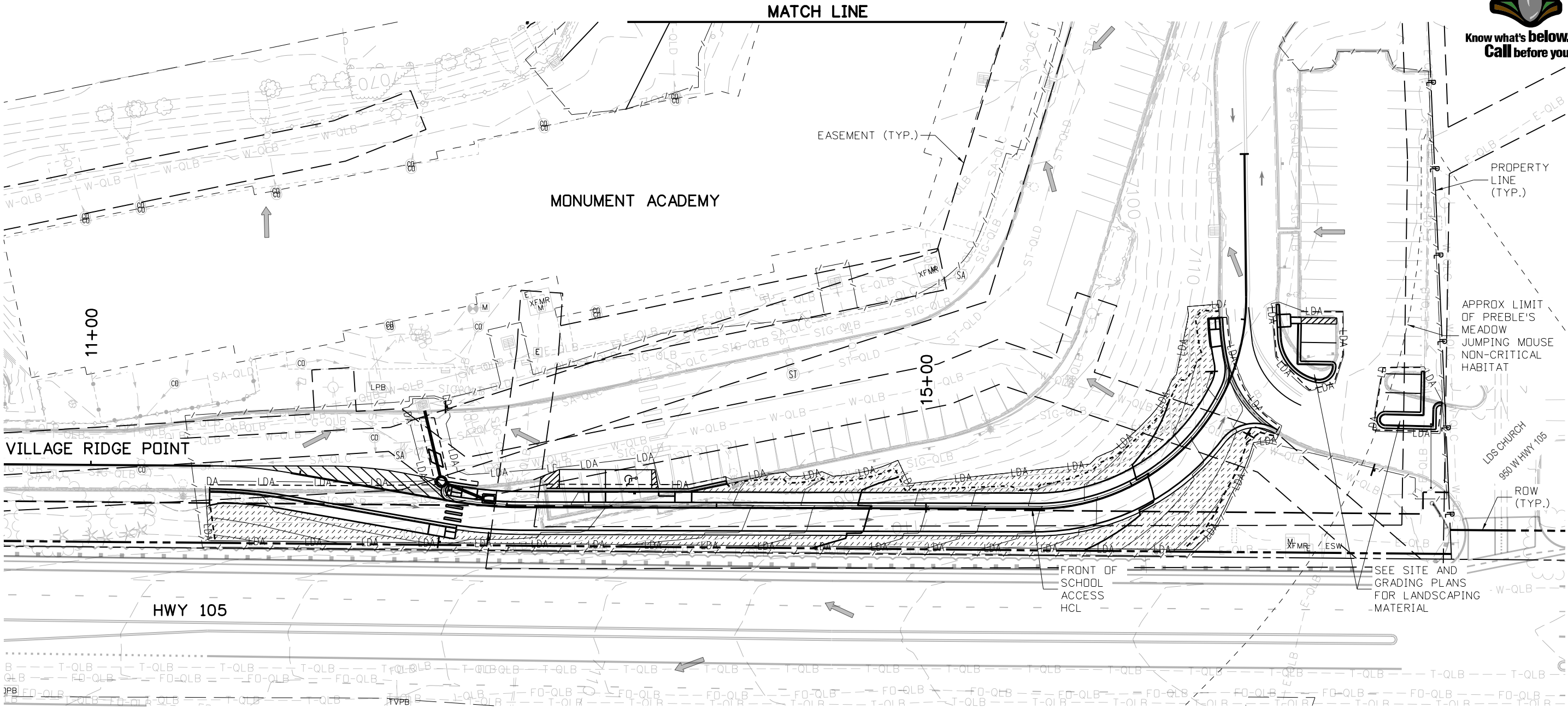
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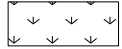


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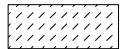
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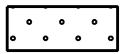
- RIPRAP, SEE DRAINAGE PLANS



- SEEDING (WETLANDS)



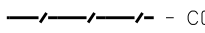
- SEEDING (NATIVE)



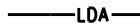
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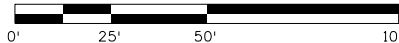
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- CONSTRUCTION LIMITS



- LDA - LIMITS DISTURBED AREA



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Horiz. Scale: 1:50

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**MONUMENT ACADEMY  
SWMP / EROSION CONTROL  
SITE MAP - FINAL (2 OF 2)**

Designer: M.CHAVEZ

Detailer: M.CHAVEZ

Sheet Subset: SWMPMAP

Structure

Numbers

Subset Sheets:

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**Project No./Code**

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Silt Fence (SF)

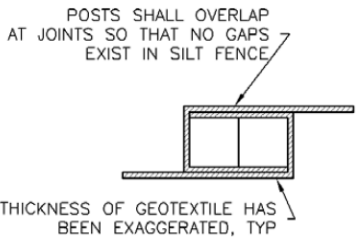
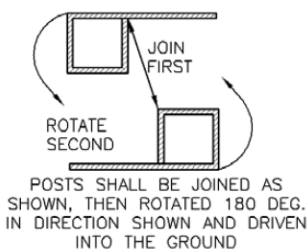
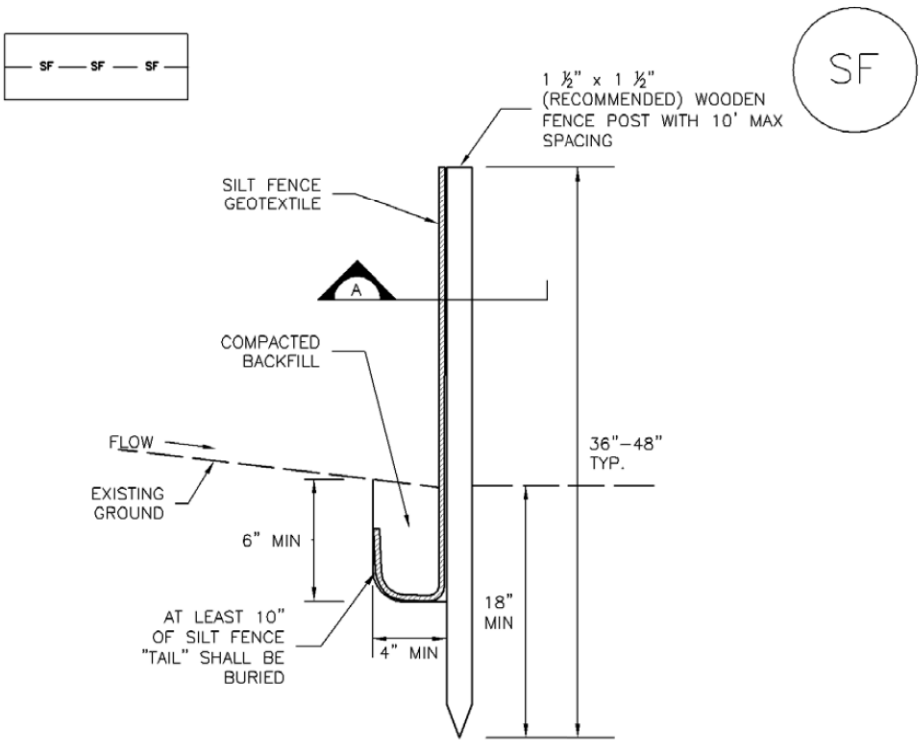
SC-1

SC-1

Silt Fence (SF)



Know what's below.  
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SILT FENCE

SECTION A

SF-1. SILT FENCE

SILT FENCE INSTALLATION NOTES

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

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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

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SF-4

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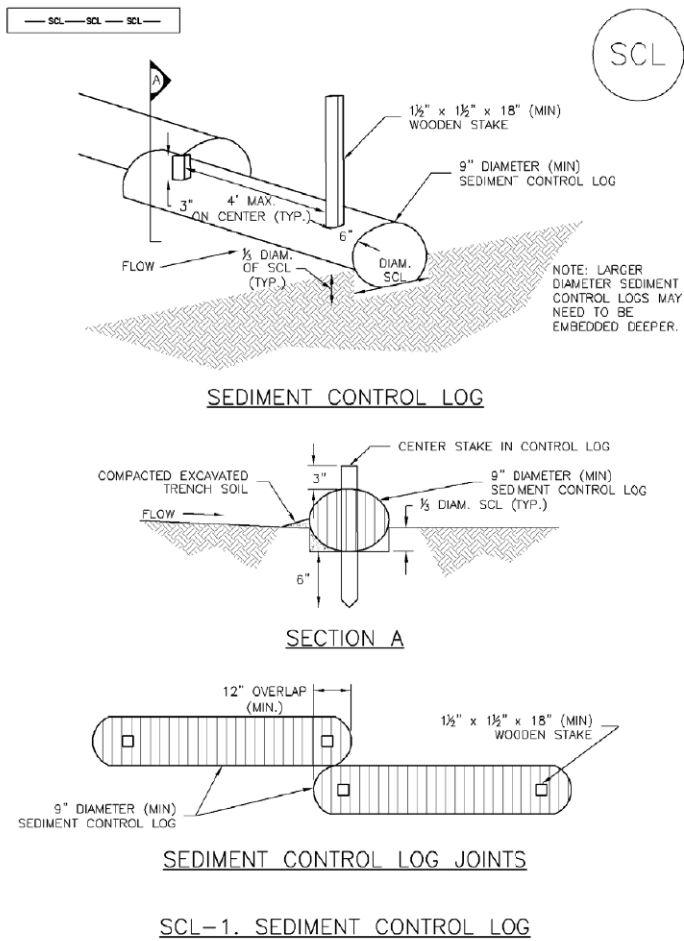
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Sediment Control Log (SCL)

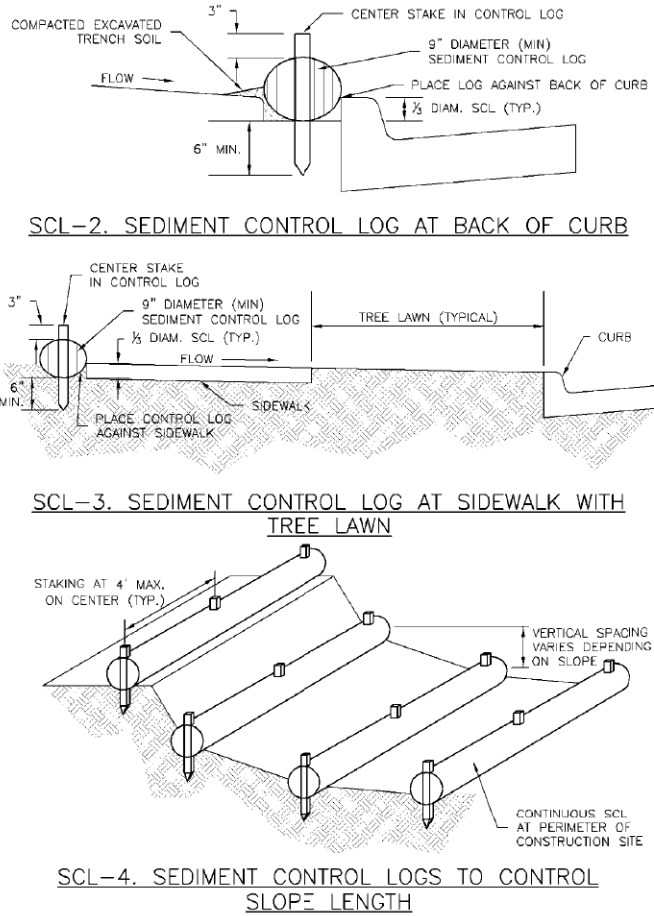
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Sediment Control Log (SCL)



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Sediment Control Log (SCL)

SC-2

- SEDIMENT CONTROL LOG INSTALLATION NOTES
- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
  - SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADE LAND-DISTURBING ACTIVITIES.
  - SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
  - SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.
  - IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.
  - THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.
  - FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.
- SEDIMENT CONTROL LOG 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 SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
  - SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, 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.

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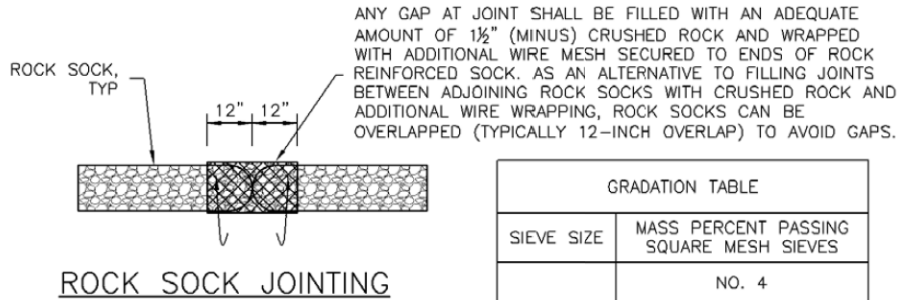
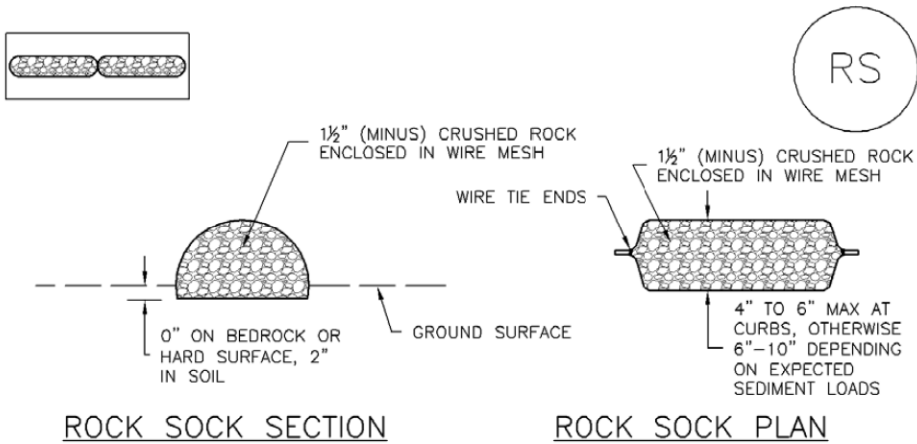
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GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1 1/2"	90 - 100
1"	20 - 55
3/4"	0 - 15
3/8"	0 - 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

ROCK SOCK INSTALLATION NOTES

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

RS-1. ROCK SOCK PERIMETER CONTROL

ROCK SOCK MAINTENANCE NOTES

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

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

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

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

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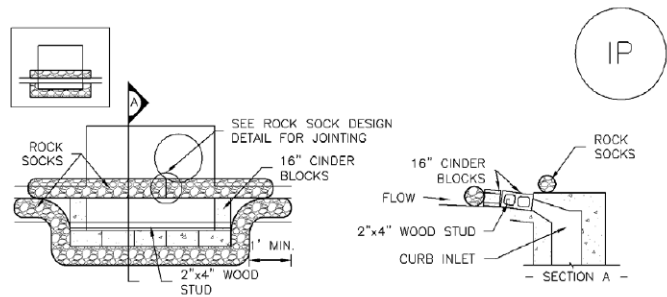
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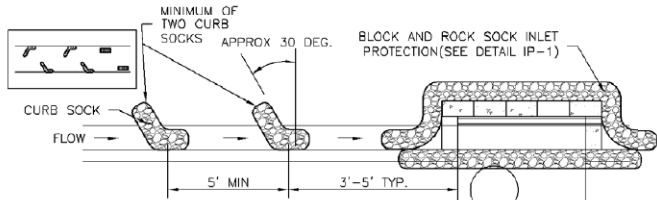
Inlet Protection (IP)



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

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
3. 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

1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

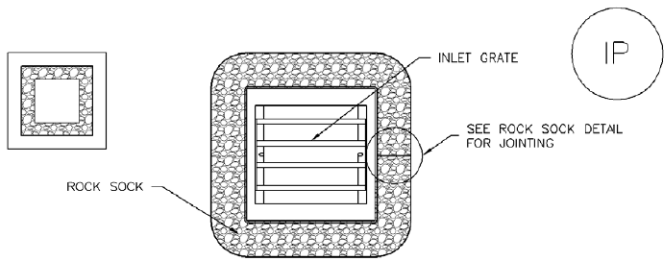
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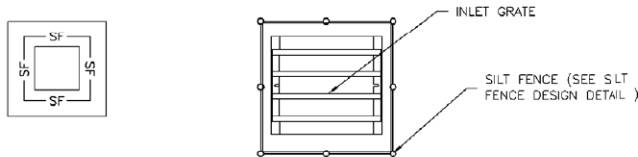
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IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

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



IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

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

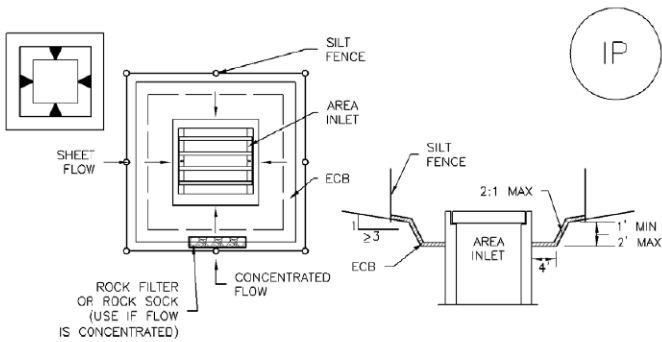
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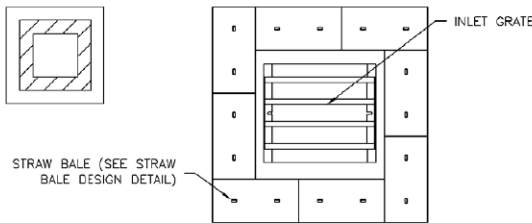
Inlet Protection (IP)



IP-5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.
2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.
3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



IP-6. STRAW BALE FOR SUMP INLET PROTECTION


STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

IP-6

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Inlet Protection (IP)

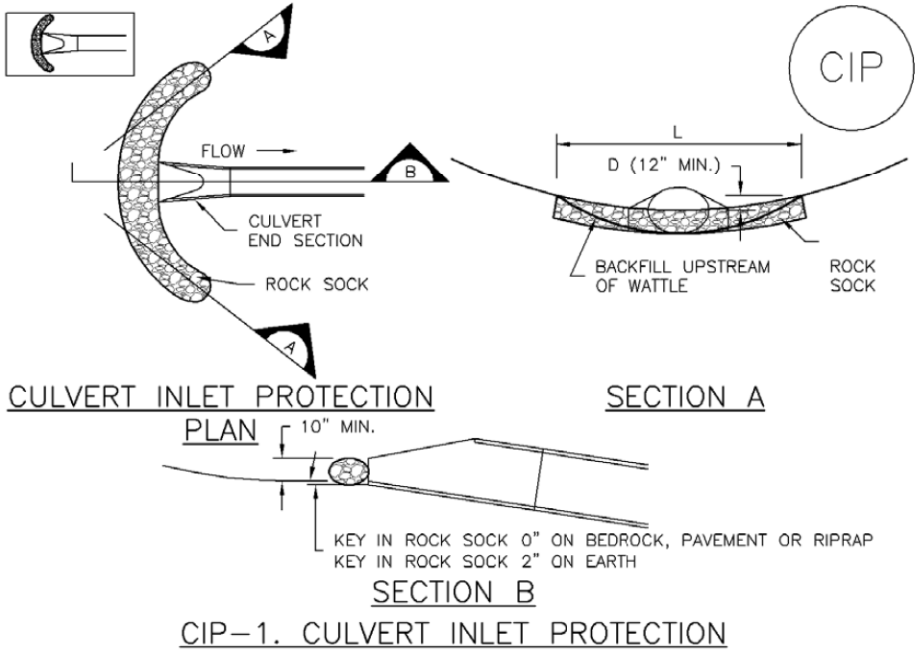
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Inlet Protection (IP)



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CULVERT INLET PROTECTION INSTALLATION NOTES

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

CULVERT INLET PROTECTION MAINTENANCE NOTES

- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
- 5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

GENERAL INLET PROTECTION INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR:  
-LOCATION OF INLET PROTECTION.  
-TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)
- 2. 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.
- 3. 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

- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
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- 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 4. 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.
- 5. 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.
- 6. 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.

August 2013

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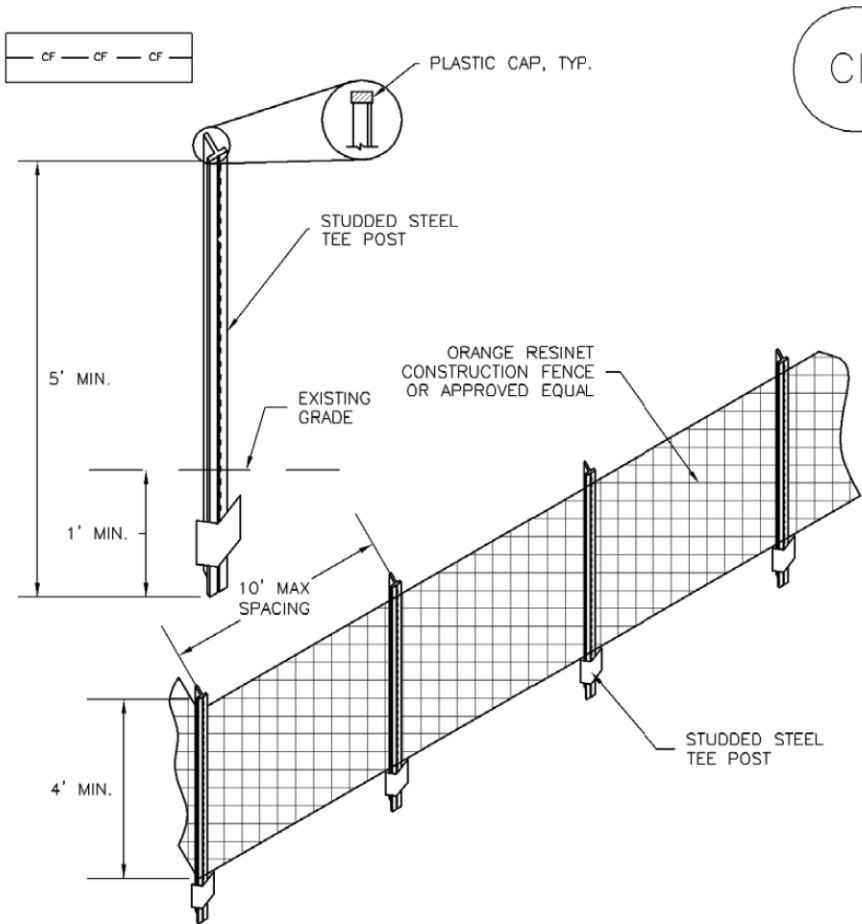
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CF-1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR:  
-LOCATION OF CONSTRUCTION FENCE.
- 2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- 3. 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.
- 4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.
- 5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 4. 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.
- 5. 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.

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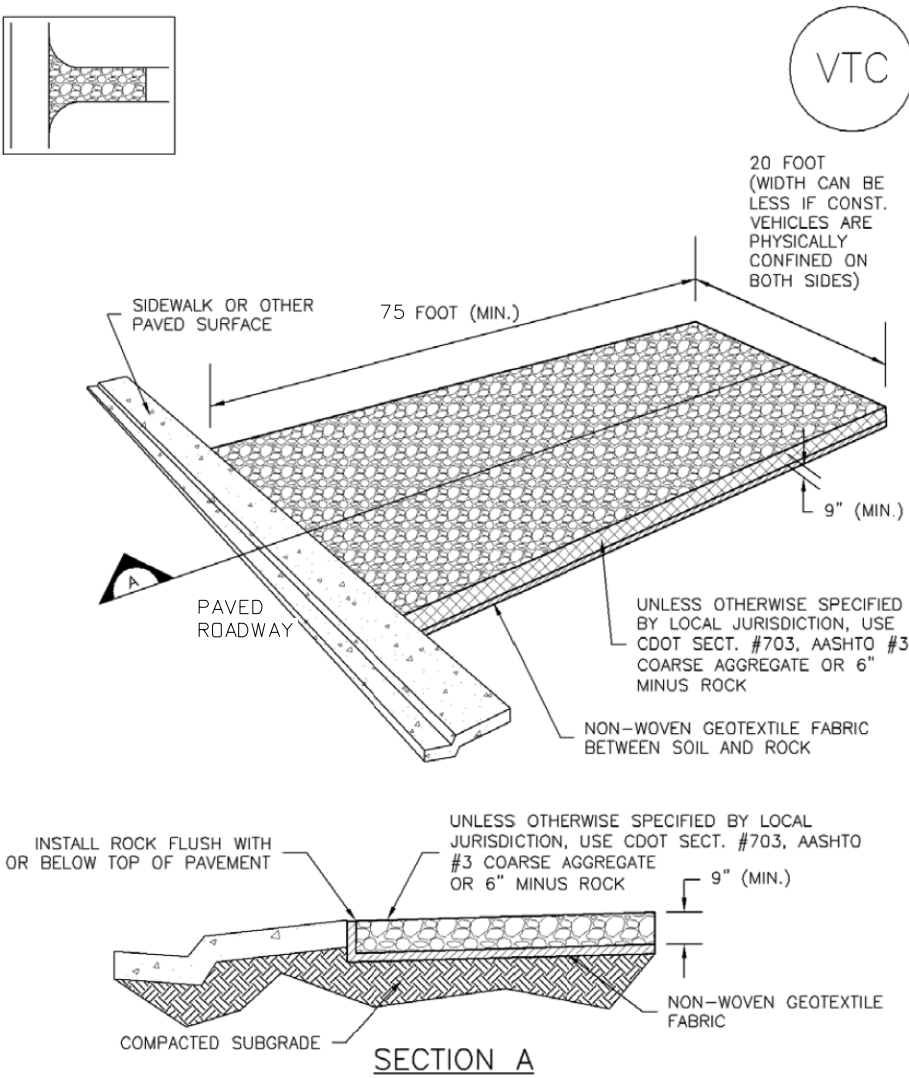
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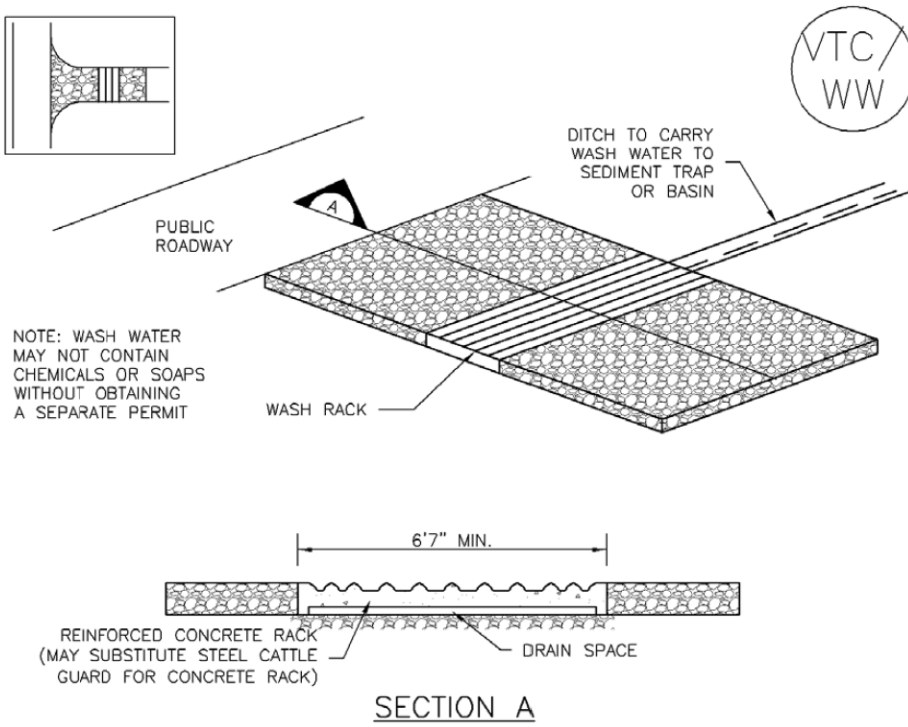
Vehicle Tracking Control (VTC) SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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SM-4 Vehicle Tracking Control (VTC)



VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

VTC-4 Urban Drainage and Flood Control District November 2010  
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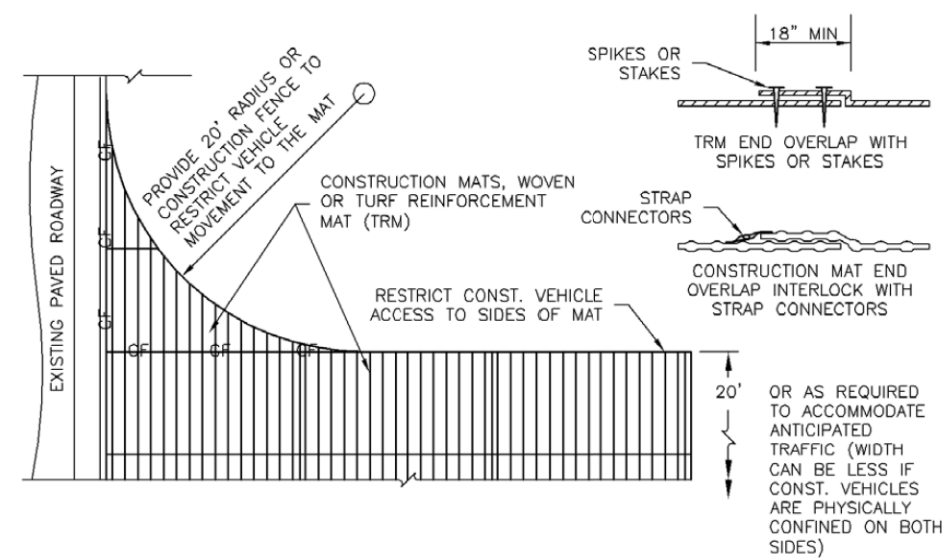
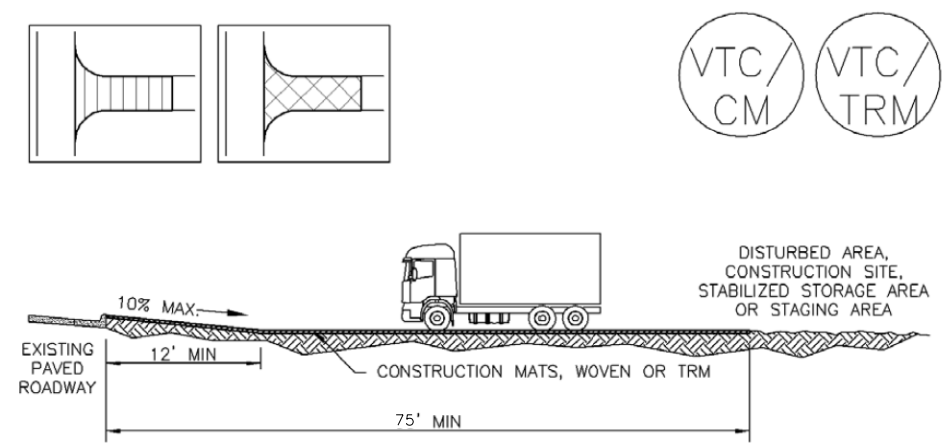
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Vehicle Tracking Control (VTC) SM-4



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

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SM-4 Vehicle Tracking Control (VTC)

- STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES**
1. SEE PLAN VIEW FOR  
-LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).  
-TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
  2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
  3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
  4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
  5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
  6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

- STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES**
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
  5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

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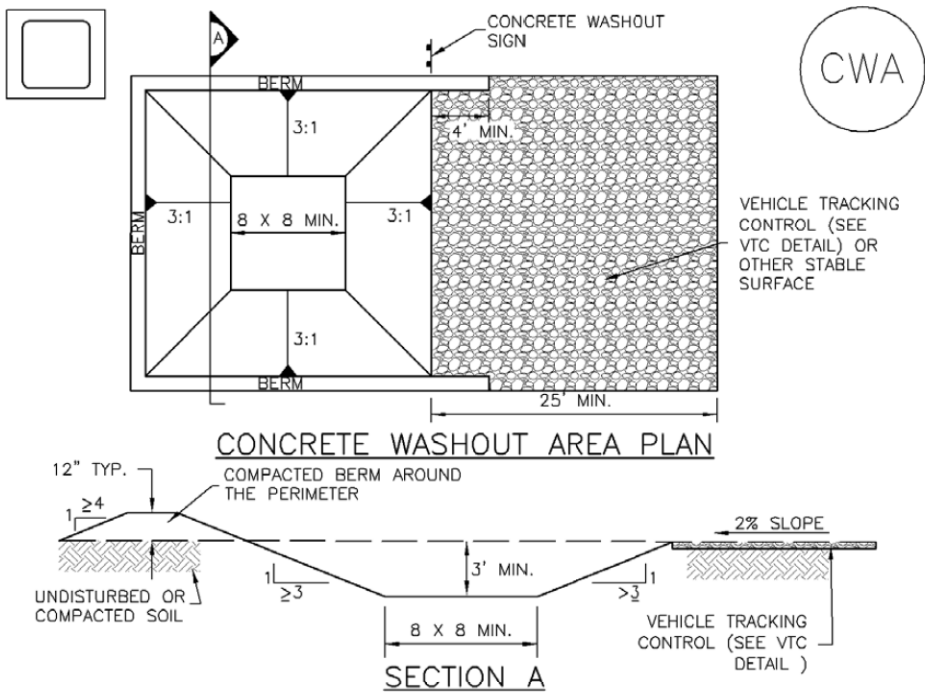
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Concrete Washout Area (CWA)

MM-1



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:  
-CWA INSTALLATION LOCATION.
2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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CWA-3

MM-1

Concrete Washout Area (CWA)

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

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

CWA-4

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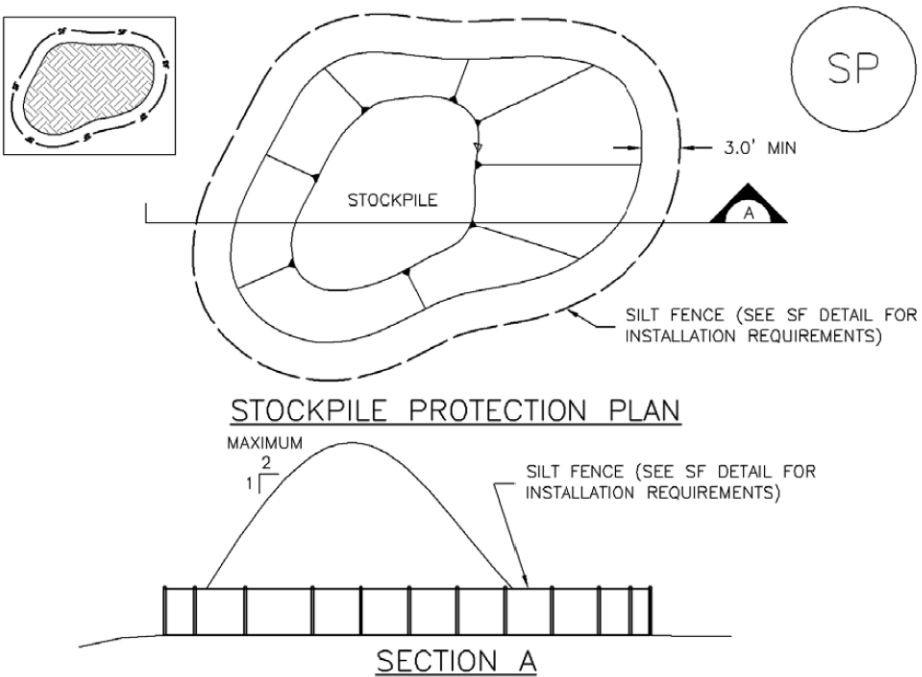


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Stockpile Management (SP)

MM-2



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR:
  - LOCATION OF STOCKPILES.
  - TYPE OF STOCKPILE PROTECTION.
- 2. 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.
- 3. 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).
- 4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRAIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

MM-2

Stockpile Management (SM)

STOCKPILE PROTECTION MAINTENANCE NOTES

- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

- 4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
- 5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

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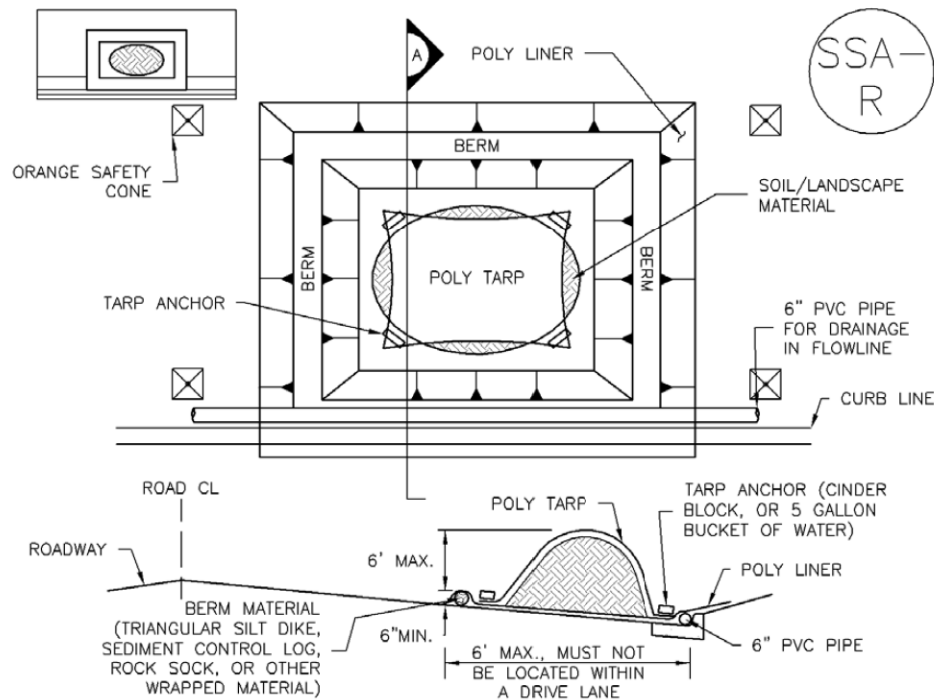
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Stockpile Management (SP)

MM-2



SP-2. MATERIALS STAGING IN ROADWAY

MATERIALS STAGING IN ROADWAYS INSTALLATION NOTES

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

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MM-2

Stockpile Management (SM)

MATERIALS STAGING IN ROADWAY MAINTENANCE NOTES

- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 4. INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS PROMPTLY.
- 5. CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.

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

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Sediment Basin (SB)

SC-7

SC-7

Sediment Basin (SB)

Sediment Basin (SB)

SC-7

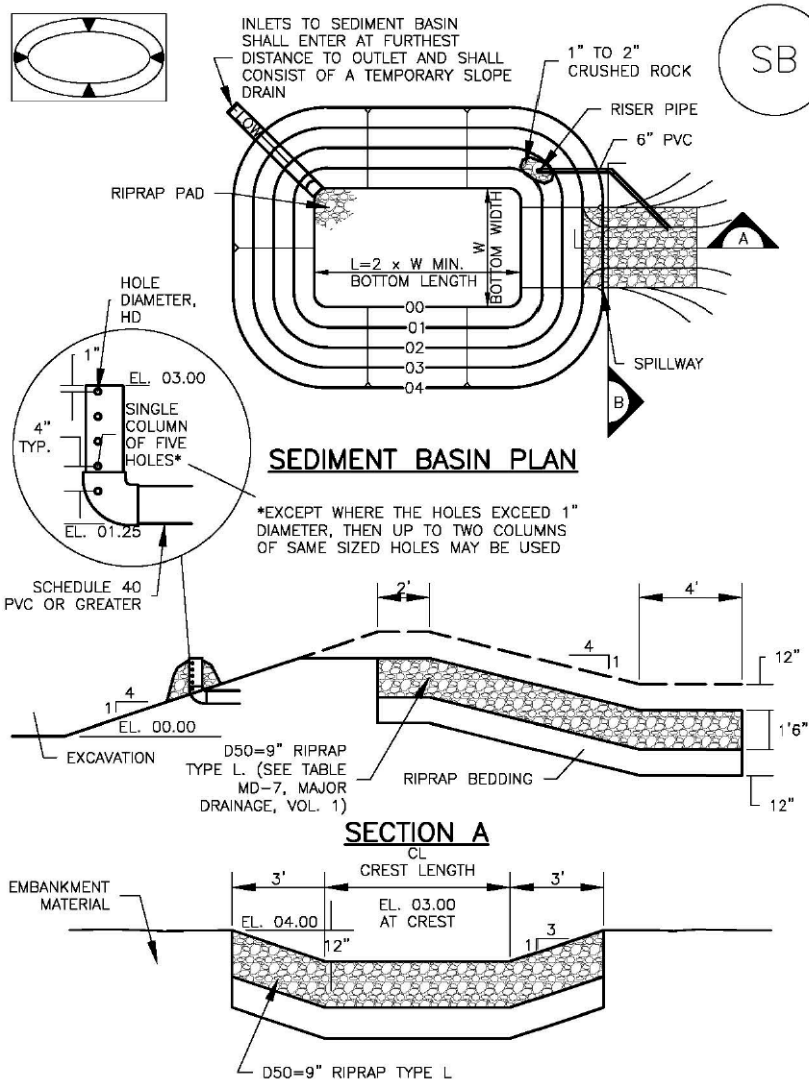


TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 1/2	2	9/32
2	21	3	1 1/16
3	28	5	1/2
4	33 1/2	6	9/16
5	38 1/2	8	2 1/32
6	43	9	2 1/32
7	47 1/4	11	2 5/32
8	51	12	2 7/32
9	55	13	7/8
10	58 1/4	15	1 9/16
11	61	16	3 1/32
12	64	18	1
13	67 1/2	19	1 1/16
14	70 1/2	21	1 1/8
15	73 1/4	22	1 3/16

SEDIMENT BASIN INSTALLATION NOTES

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

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

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

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

August 2013

Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

SB-5

SB-6

Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

August 2013

August 2013

Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

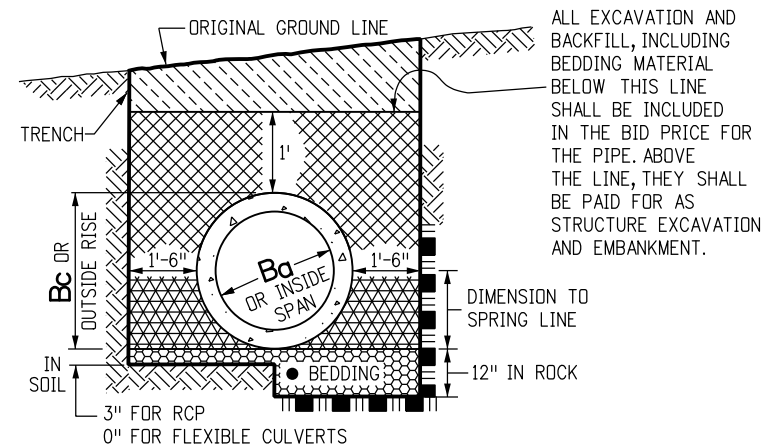
SB-7

Sheet Revisions		
Date:	Comments	Init.



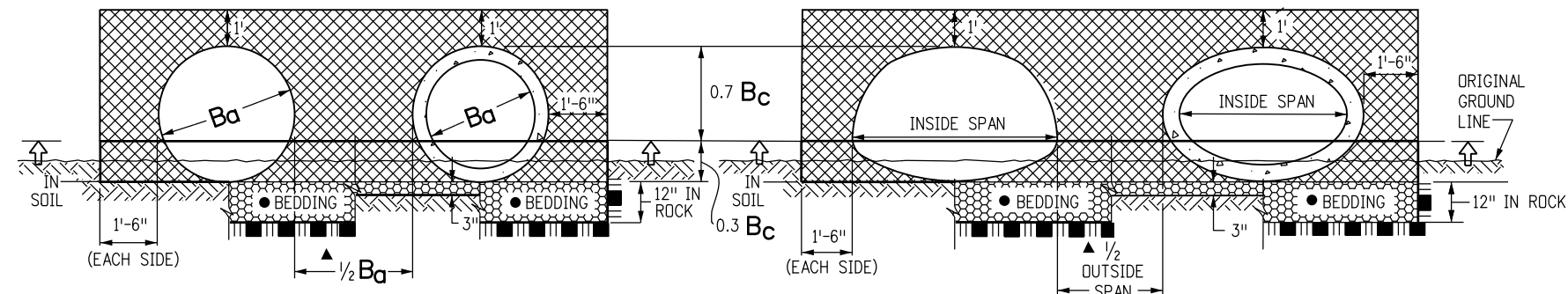
As Constructed		MONUMENT ACADEMY SWMP DETAILS		Project No./Code
No Revisions:				
Revised:		Designer: M. CHAVEZ	Structure Numbers	
Void:		Detailer: M. CHAVEZ		
		Sheet Subset: SWMPDET	Subset Sheets: 12 of 12	Sheet Number 81 of 81



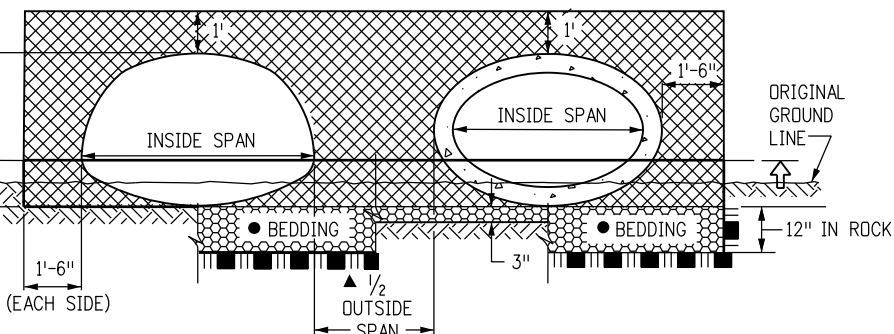


### PIPE IN TRENCH

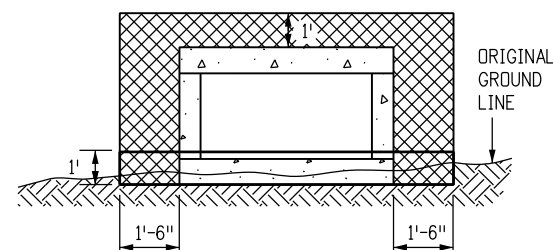
- THE BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. OF LOOSE STRUCTURE BACKFILL (CLASS 1 OR 2). BEDDING IS NOT REQUIRED FOR FLEXIBLE PIPE IN SOIL. BEDDING MATERIAL FOR RIGID OR FLEXIBLE PIPE IN ROCK SHALL BE 12 IN. OF LOOSE STRUCTURE BACKFILL, CLASS 1.



### CIRCULAR PIPE IN FILL

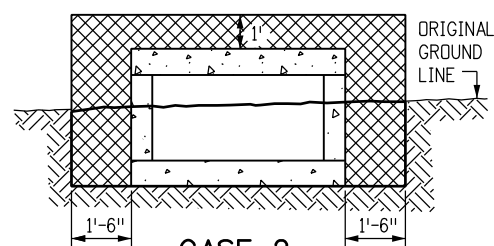


### ARCH OR ELLIPTICAL PIPE IN FILL



## CASE 1

APPLIES WHEN THE ORIGINAL GROUND LINE IS LESS THEN 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT. THE EMBANKMENT SHALL BE BUILT UP TO 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT AND THEN EXCAVATED TO THE BOTTOM OF THE BOX CULVERT. THIS EMBANKMENT AND EXCAVATION WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.

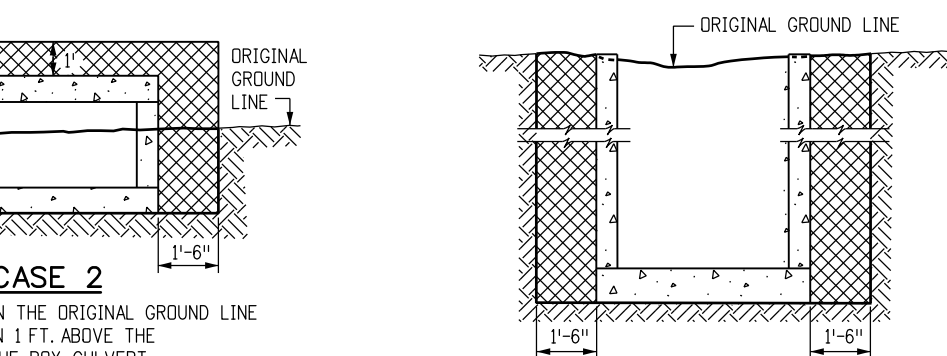


## CASE 2

APPLIES WHEN THE ORIGINAL GROUND LINE  
IS MORE THAN 1 FT. ABOVE THE  
BOTTOM OF THE BOX CULVERT.

CONCRETE BOX CULVERT

IN BOTH CASES, THE TRENCH (OUTLINED BY THE THICK SOLID LINE)  
SHALL THEN BE EXCAVATED TO ACCOMMODATE CONSTRUCTION OF THE BOX CULVERT.

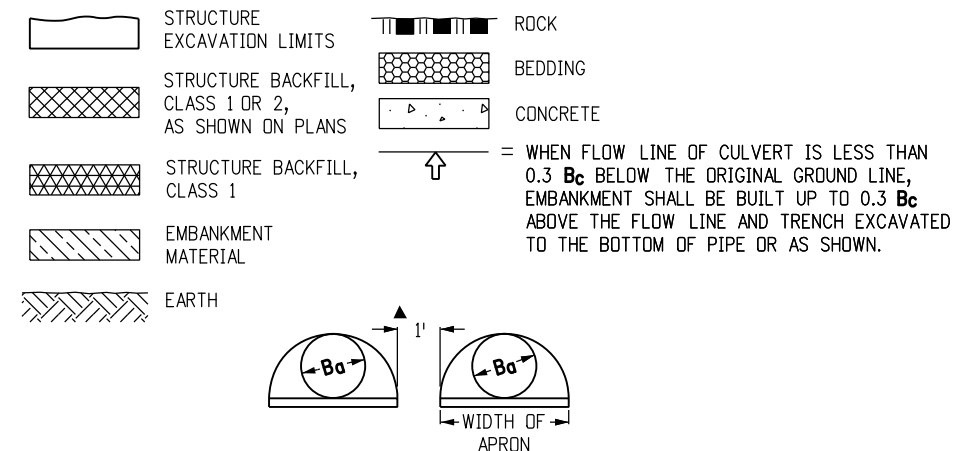


## DROP INLETS AND DIVISION BOXES

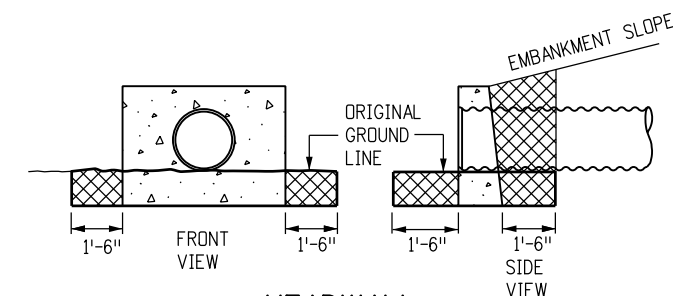
### GENERAL NOTES

1. EXCAVATION AND BACKFILL PATTERNS DIFFERENT FROM THOSE INDICATED ON THESE SHEETS WILL BE SHOWN ELSEWHERE ON THE PLANS.
2. EXCAVATION FOR CHANNEL CHANGE OR CHANNEL IMPROVEMENT WILL BE EITHER UNCLASSIFIED EXCAVATION OR MUCK EXCAVATION AND WILL BE NOTED ON THE PLANS. EXCAVATION FROM THE CHANNEL FLOWLINE TO THE DEPTH REQUIRED FOR THE NEW STRUCTURE AND INCIDENTAL CHANNEL EXCAVATION WILL BE PAID FOR AS STRUCTURE EXCAVATION.
3. STRUCTURE FOOTINGS WHICH ARE LOCATED IN ROCK SHALL BE POURED OUT TO UNDISTURBED ROCK WITHOUT FORMING IN CONFORMANCE WITH SUBSECTION 601.09(b).
4. STRUCTURAL PLATE CULVERTS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS.
5. **B<sub>a</sub>** EQUALS THE INSIDE DIAMETER OF A PIPE AND **B<sub>c</sub>** EQUALS THE OUTSIDE DIAMETER OF A PIPE. FOR THIN WALLED PIPES, IT IS ASSUMED THAT **B<sub>a</sub> = B<sub>c</sub>**.
6. APPROXIMATE STRUCTURE EXCAVATION AND BACKFILL QUANTITIES, UP TO 1 FT. OVER THE PIPE WILL BE SHOWN ON THE PLANS, FOR INFORMATION ONLY.

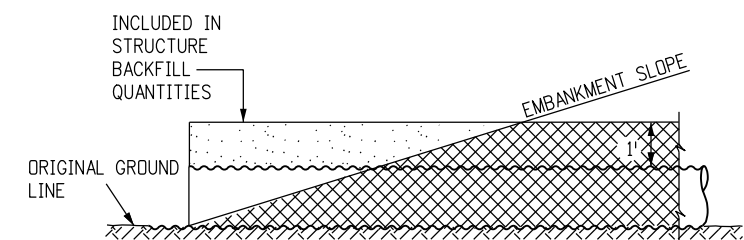
### LEGEND



## CONDUIT WITH END SECTIONS



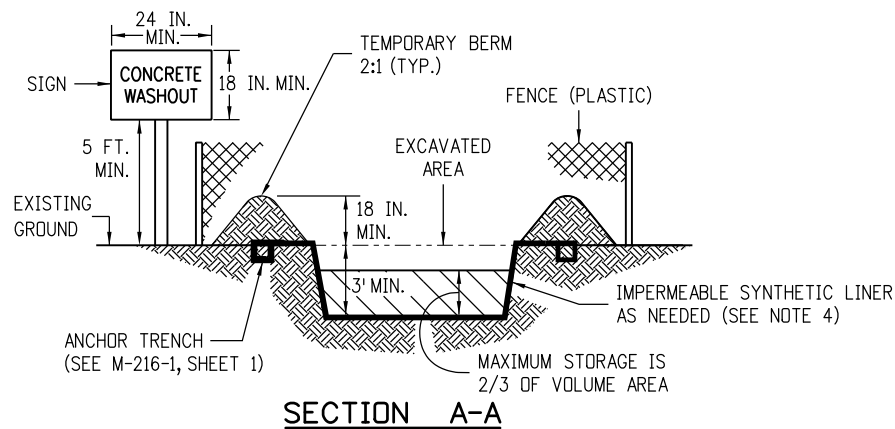
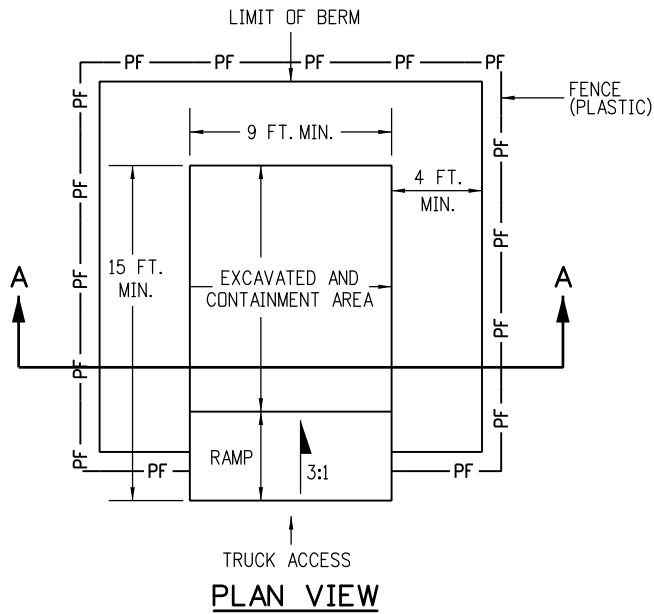
### HEADWALL



END OF PIPE

Computer File Information		<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	Sheet Revisions		<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>Colorado Department of Transportation</div><div>2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868</div><div>Project Development Branch</div><div>JBK</div></div></div>	EXCAVATION AND BACKFILL FOR STRUCTURES		STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)		Date:	Comments		M-206-1		Standard Sheet No. 1 of 2	
Designer Initials: JBK	(R-X)								
Last Modification Date: 07/31/19	(R-X)								
Detailer Initials: LTA	(R-X)								
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)								
						Issued by the Project Development Branch: July 31, 2019		Project Sheet Number: M&S 1 of 25	

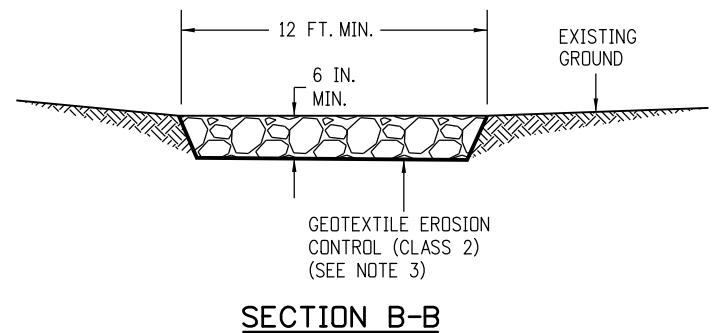
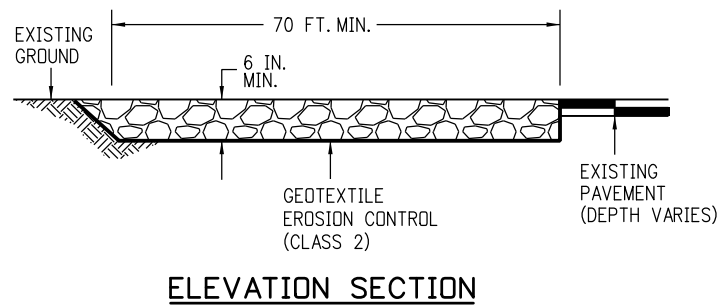
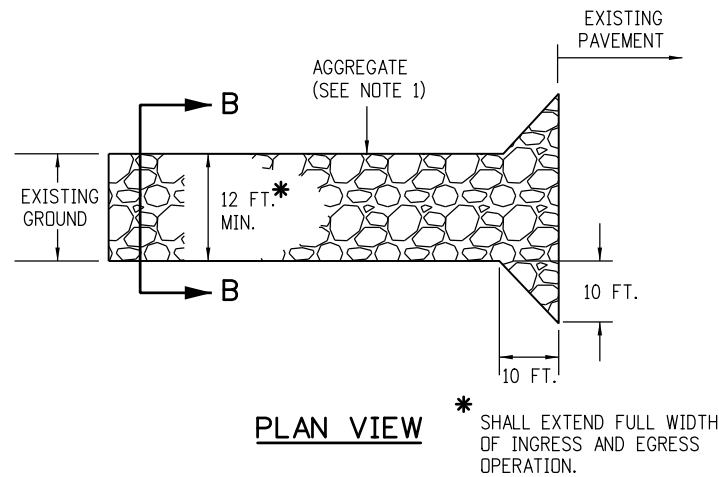




NOTES:

1. A FENCE (PLASTIC) CONFORMING TO SECTION 607 SHALL BE INSTALLED AROUND THE CONCRETE WASHOUT AREA, EXCEPT AT THE OPENING.
2. THE CONCRETE WASHOUT SIGN SHALL HAVE LETTERS AT LEAST 3 INCHES HIGH AND CONFORM TO SUBSECTION 630.02.
3. ALL MATERIALS AND LABOR TO COMPLETE THE CONCRETE WASHOUT STRUCTURE SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
4. THE BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF FIVE FEET ABOVE GROUND WATER. IF NOT, THE BOTTOM OF EXCAVATION SHALL BE IN ACCORDANCE WITH 208.02 (j).
5. THE PAY ITEM NUMBER FOR CONCRETE WASHOUT STRUCTURE (EACH) IS 208-00045.

CONCRETE WASHOUT STRUCTURE



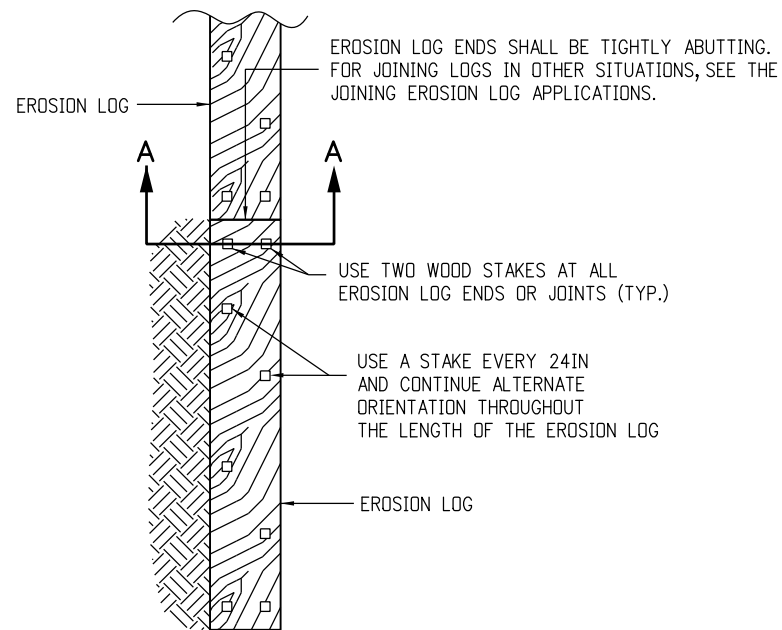
NOTES:

1. AGGREGATE SHALL CONFORM TO SUBSECTION 208.02 (i).
2. THE CONTRACTOR SHALL PROTECT CURB AND GUTTER THAT CROSSES THE ENTRANCE FROM DAMAGE, WHILE NOT BLOCKING FLOW OF WATER THRU STRUCTURE. PROTECTION OF THE CURB AND GUTTER SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
3. GEOTEXTILE SHALL CONFORM TO SUBSECTION 712.08.
4. ALL MATERIALS AND LABOR TO COMPLETE THE VEHICLE TRACKING PAD SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
5. THE PAY ITEM NUMBER FOR VEHICLE TRACKING PAD (EACH) IS 208-00070.

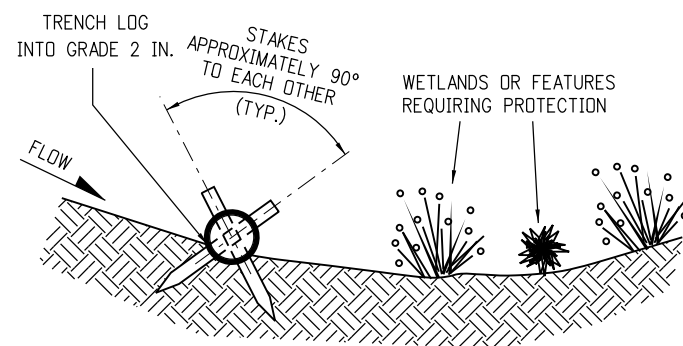
VEHICLE TRACKING PAD

Computer File Information		Sheet Revisions		<div>Colorado Department of Transportation</div> <div> 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868</div> <div>Project Development Branch</div> <div>JBK</div>	TEMPORARY EROSION CONTROL		STANDARD PLAN NO.
Creation Date: 07/31/19		Date:	Comments		M-208-1		
Designer Initials: JBK	(R-X)				Issued by the Project Development Branch: July 31, 2019		Standard Sheet No. 1 of 11
Last Modification Date: 07/31/19	(R-X)						
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)						Project Sheet Number: M&S 3 of 25



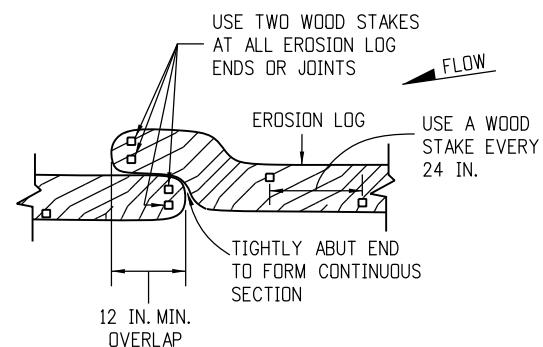


PLAN VIEW

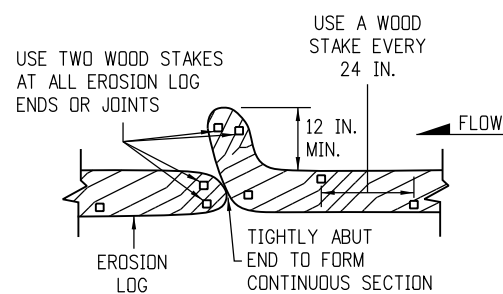


SECTION A-A

TYPICAL STAKE INSTALLATION

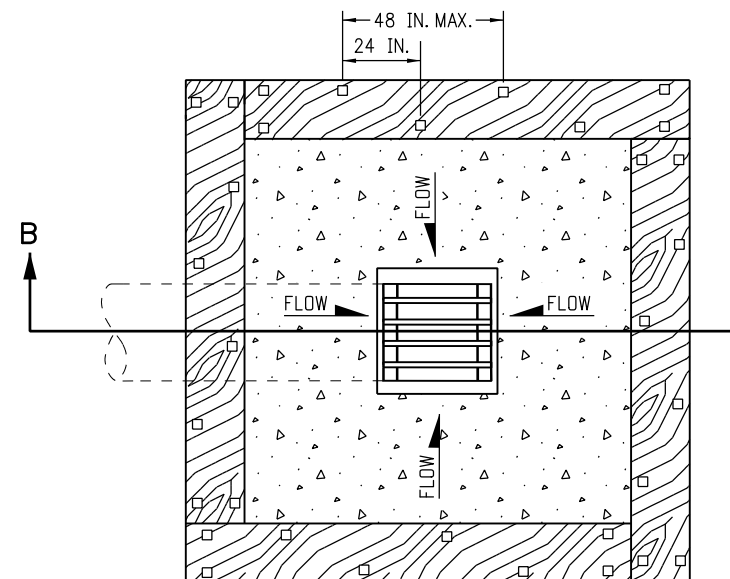


OVERLAP JOINING DETAIL

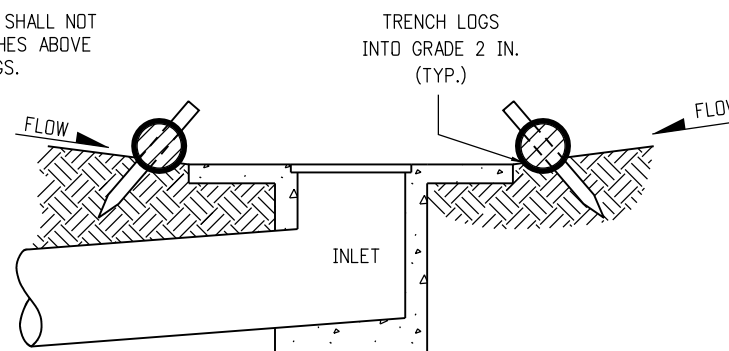


J-HOOK JOINING DETAIL

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9 IN.)
208-00002	TYPE 1 (12 IN.)
208-00013	TYPE 1 (20 IN.)
208-00007	TYPE 2 (8 IN.)
208-00008	TYPE 2 (12 IN.)
208-00009	TYPE 2 (18 IN.)
208-00022	TYPE 3 (9 IN.)
208-00023	TYPE 3 (12 IN.)
208-00024	TYPE 3 (20 IN.)



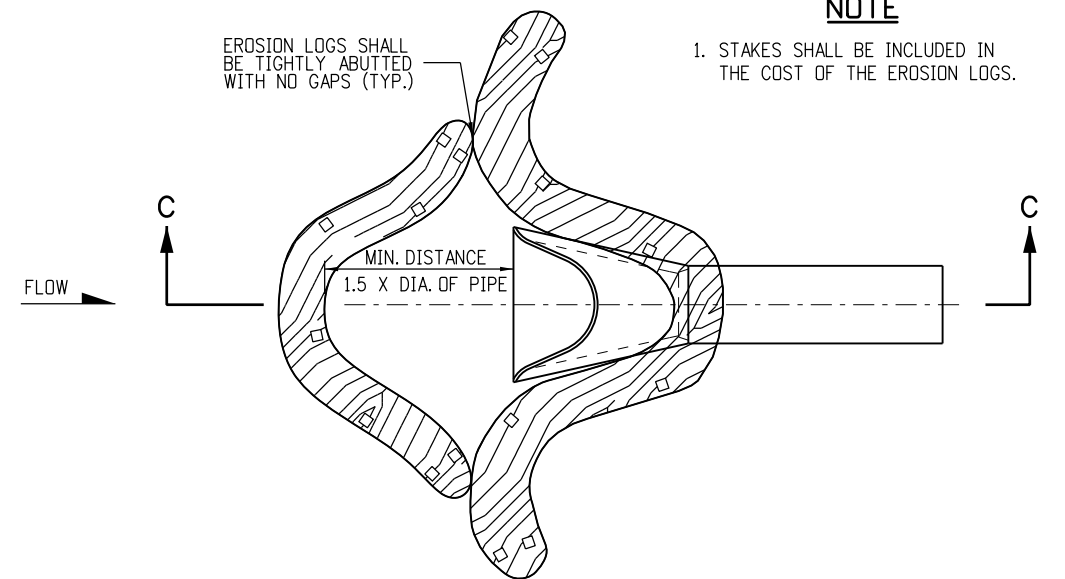
PLAN VIEW



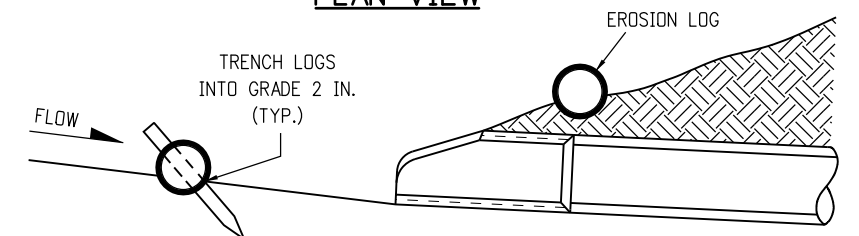
SECTION B-B

NOTE: LOCATE EROSION LOGS AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

EROSION LOG FILTER AT DROP INLET



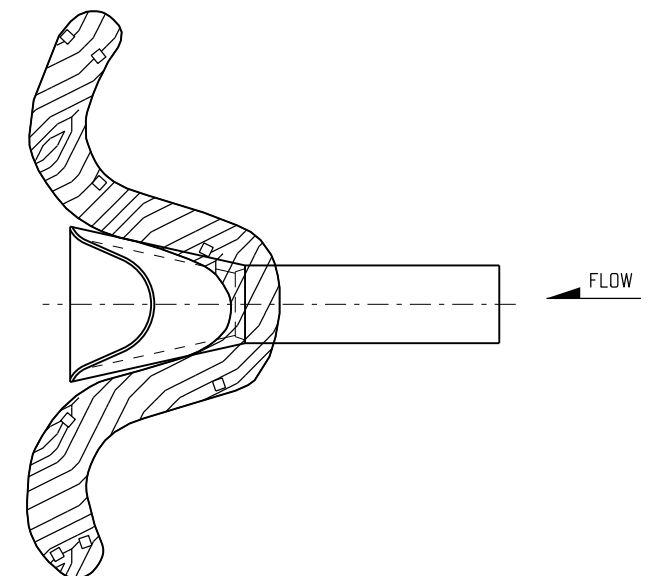
PLAN VIEW



SECTION C-C  
(NOT ALL LOGS SHOWN)

NOTE: TOP OF STAKE SHALL NOT EXTEND PAST TOP OF EROSION LOG MORE THAN 2 IN.

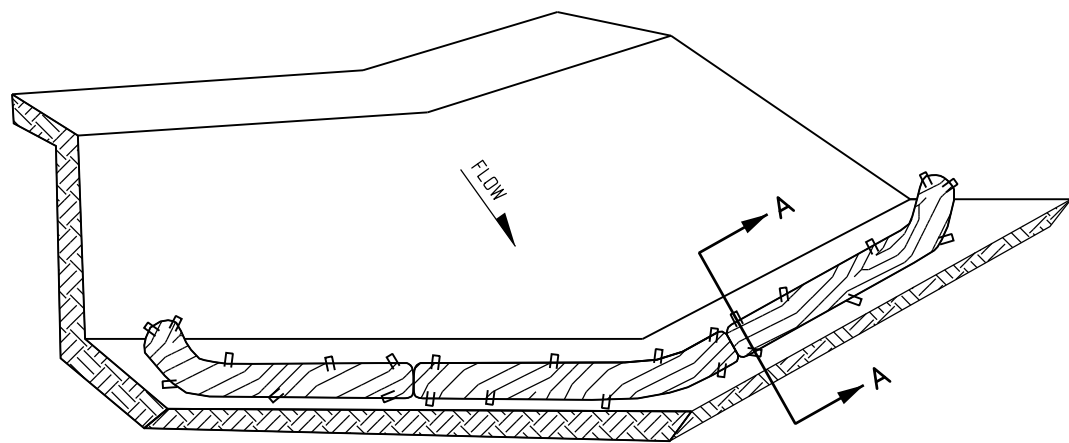
EROSION LOG CULVERT INLET PROTECTION



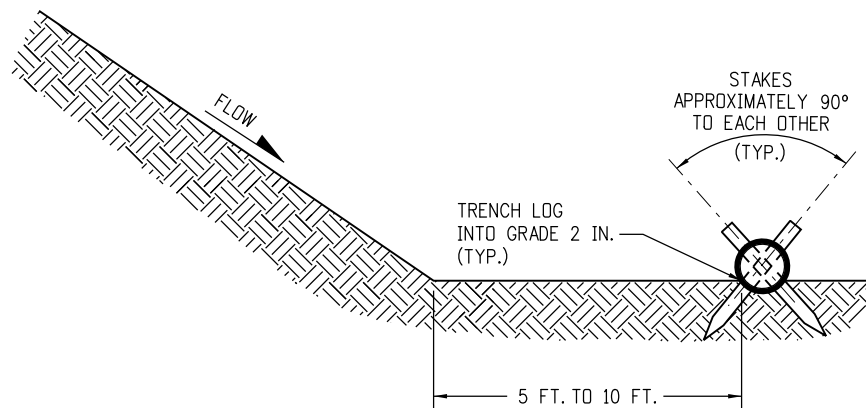
EROSION LOG CULVERT OUTLET PROTECTION

## EROSION LOG APPLICATIONS

Computer File Information		Sheet Revisions		<div> <div>Colorado Department of Transportation</div> <div> </div> <div>           2829 West Howard Place            CDOT HQ, 3rd Floor            Denver, CO 80204            Phone: 303-757-9021 FAX: 303-757-9868         </div> <div>           Project Development Branch           <div>JBK</div> </div> </div>	<div> <div>TEMPORARY</div> <div>EROSION CONTROL</div> <div>Issued by the Project Development Branch: July 31, 2019</div> </div>	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 2 of 11	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number: M&S 4 of 25	
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English							



ISOMETRIC VIEW



SECTION A-A

- NOTES:
- 1. EROSION LOGS USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
  - 2. EROSION LOGS SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
  - 3. SEE SHEET 2 OF 11 FOR JOINING LOGS DETAIL.

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9 IN.)
208-00002	TYPE 1 (12 IN.)
208-00013	TYPE 1 (20 IN.)
208-00007	TYPE 2 (8 IN.)
208-00008	TYPE 2 (12 IN.)
208-00009	TYPE 2 (18 IN.)
208-00022	TYPE 3 (9 IN.)
208-00023	TYPE 3 (12 IN.)
208-00024	TYPE 3 (20 IN.)

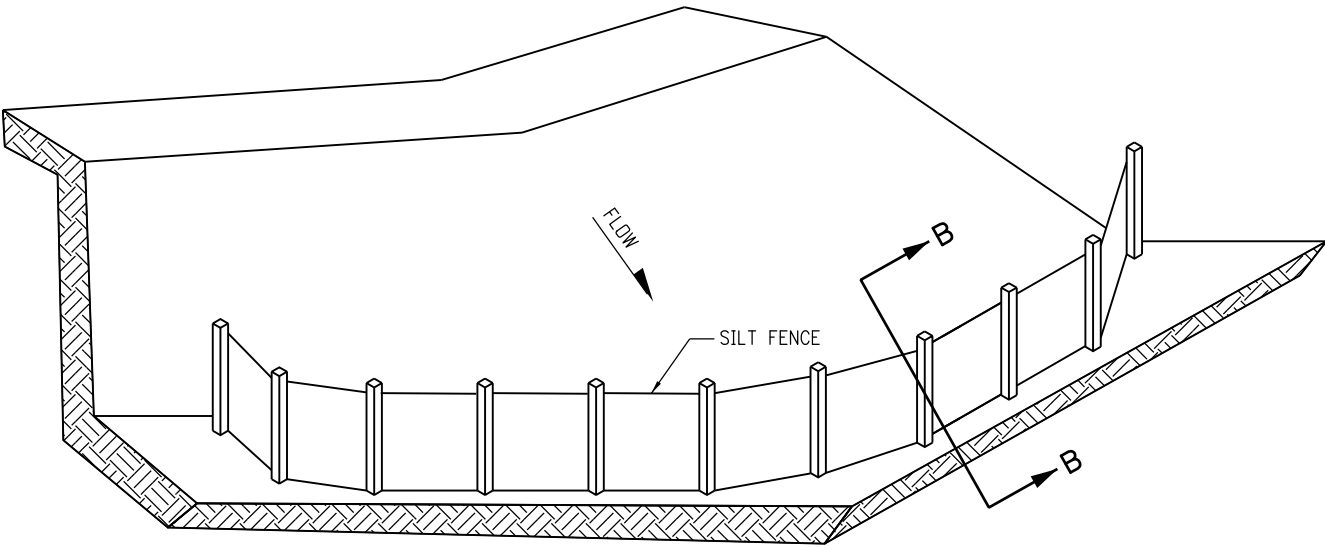
NOTE: THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2 INCHES ABOVE THE TOPS OF EROSION LOGS.

EROSION LOG TOE OF SLOPE PROTECTION

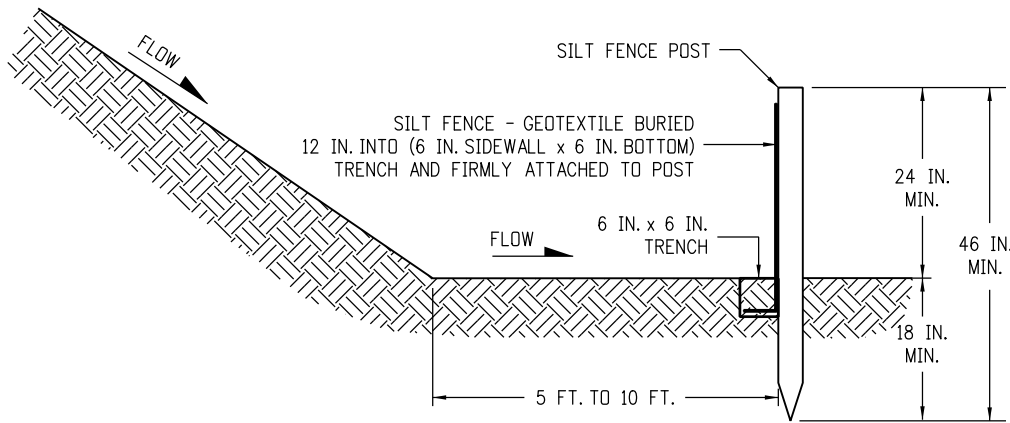
TOE OF SLOPE PROTECTION APPLICATIONS

NOTES

- 1. SILT FENCE SHALL HAVE A MAXIMUM DRAINAGE AREA OF ONE-QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; MAXIMUM SLOPE LENGTH BEHIND BARRIER IS 100 FEET.
- 2. SILT FENCE USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
- 3. SILT FENCE SHALL BE PLACED PARALLEL TO THE CONTOUR WITH ENDS FLARED UP SLOPE.
- 4. THE MAXIMUM LENGTH OF EROSION LOGS OR SILT FENCES WITHOUT A FLARED END TURNING UPSLOPE IS 150 FEET.



ISOMETRIC VIEW

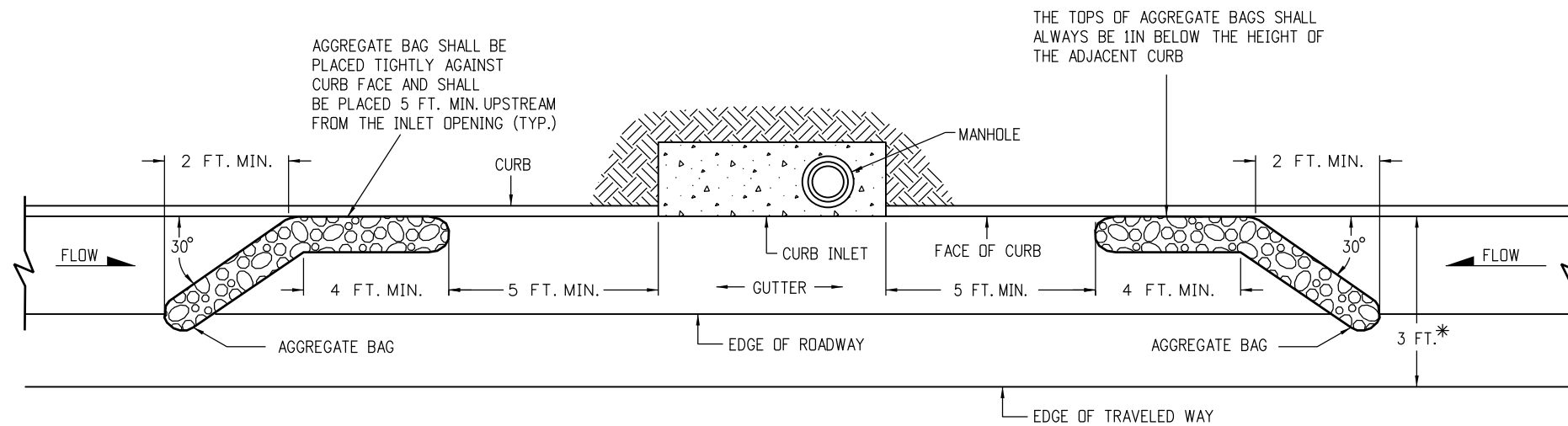


SECTION B-B

SILT FENCE TOE OF SLOPE PROTECTION

NOTE: THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	TEMPORARY EROSION CONTROL Issued by the Project Development Branch: July 31, 2019	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 3 of 11	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number: M&S 5 of 25	
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)						

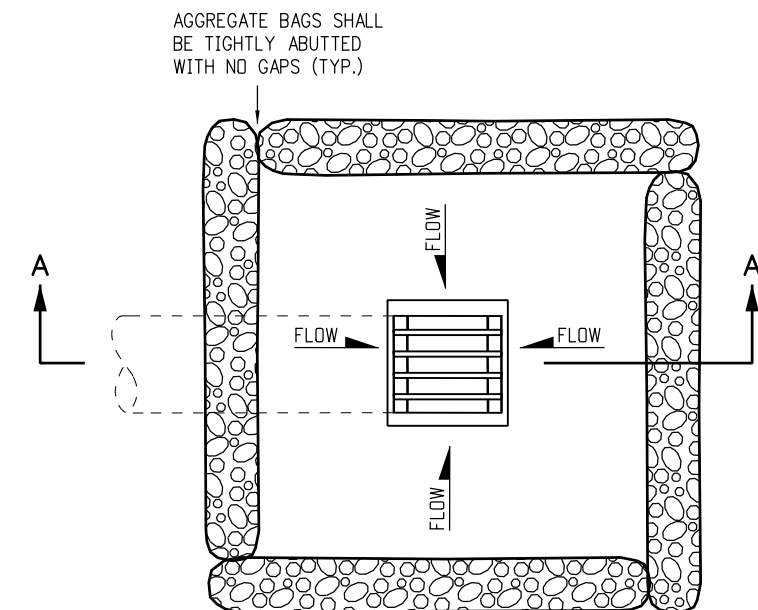


### PLAN VIEW

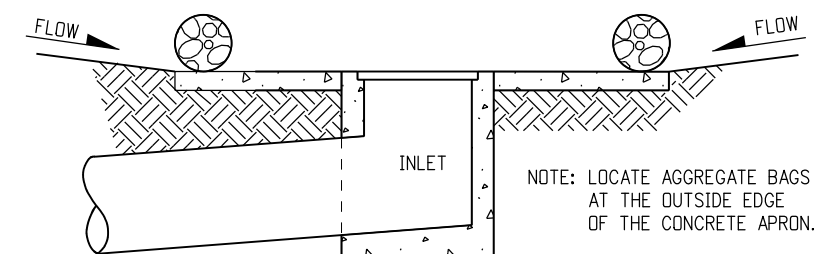
\* NOTE: USE AGGREGATE BAGS ONLY WHEN THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY (INCLUDING CONDITIONS DURING DETOURS) TO THE FACE OF CURB.

LENGTH (L) OF INLET FT.	NUMBER OF AGGREGATE BAGS UPSTREAM OF INLET
0 - 5	1
6 - 10	2
L > 10	3

### AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I)



### PLAN VIEW



### SECTION A-A

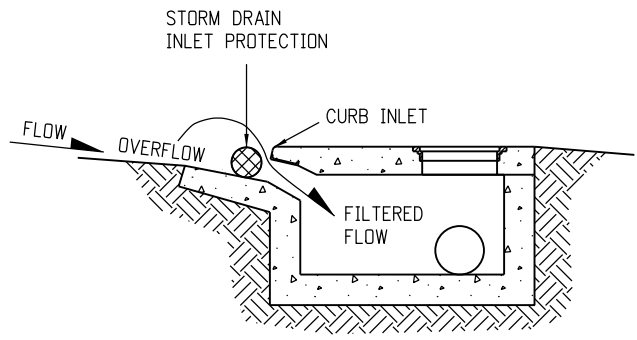
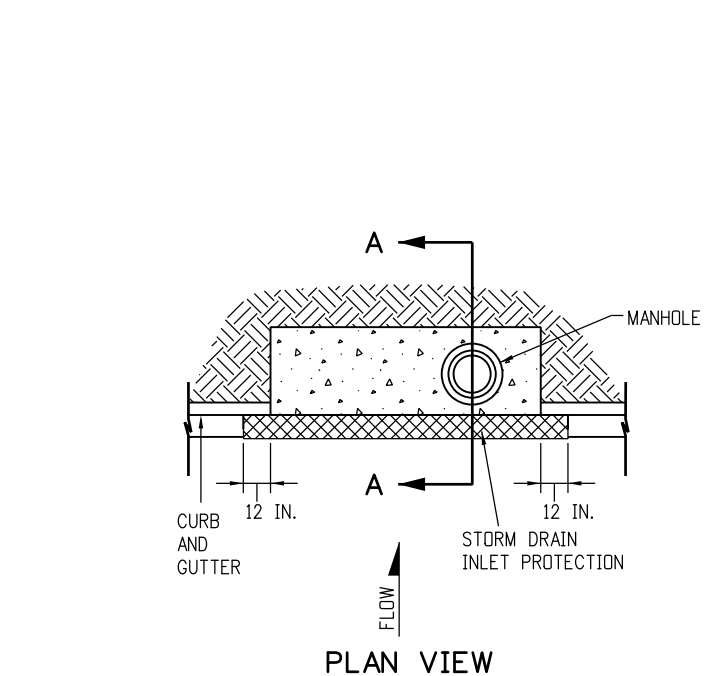
### AGGREGATE BAGS AT DROP INLET

## AGGREGATE BAG APPLICATIONS

NOTE: THE PAY ITEM NUMBER FOR AGGREGATE BAG (LF) IS 208-00035

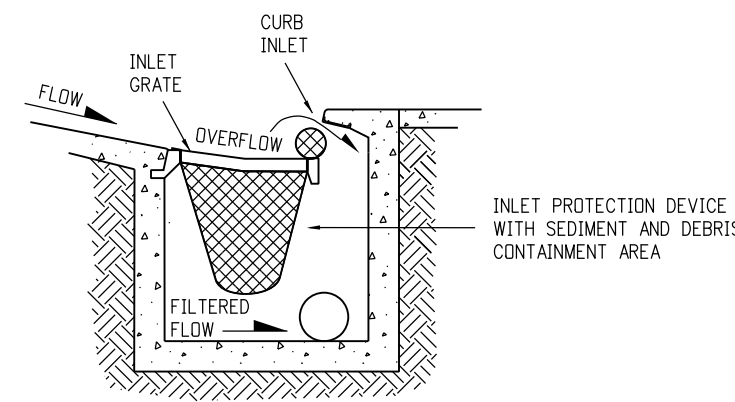
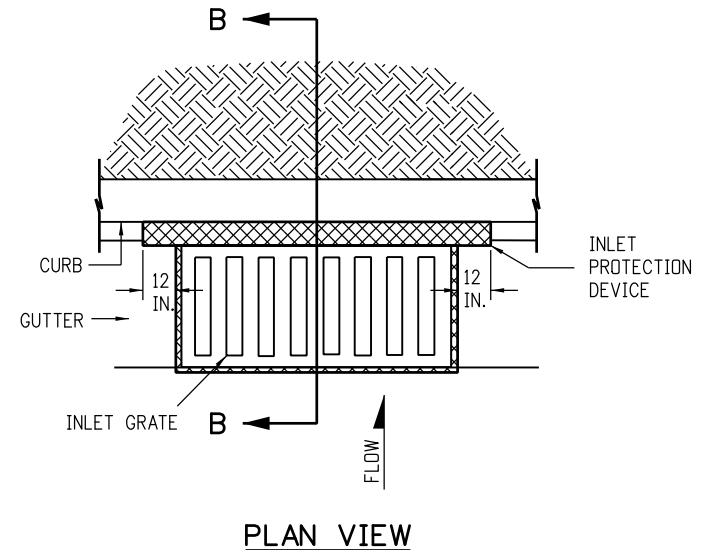
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Creation Date: 07/31/19	(R-X)	Date:	Comments			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 4 of 11	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number: M&S 6 of 25	
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)					



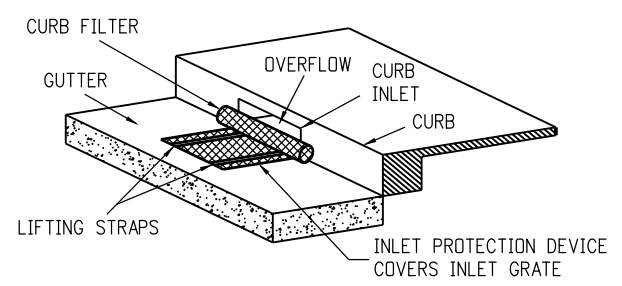


SECTION A-A  
STORM DRAIN INLET PROTECTION (TYPE I)

- NOTES:
1. INLET PROTECTION DEVICE SHALL EXTEND 12 INCHES PAST EACH END OF THE INLET.
  2. THE PAY ITEM NUMBERS FOR STORM DRAIN INLET PROTECTION (TYPE I) ARE 208-00051 (LF), 208-00053 84 INCHES (EACH), 208-00057 144 INCHES (EACH), AND 208-00058 204 INCHES (EACH).
  3. FOR STORM DRAIN INLET TYPES I AND II, IF THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB, USE THE AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I) DETAIL ON SHEET 4 INSTEAD.

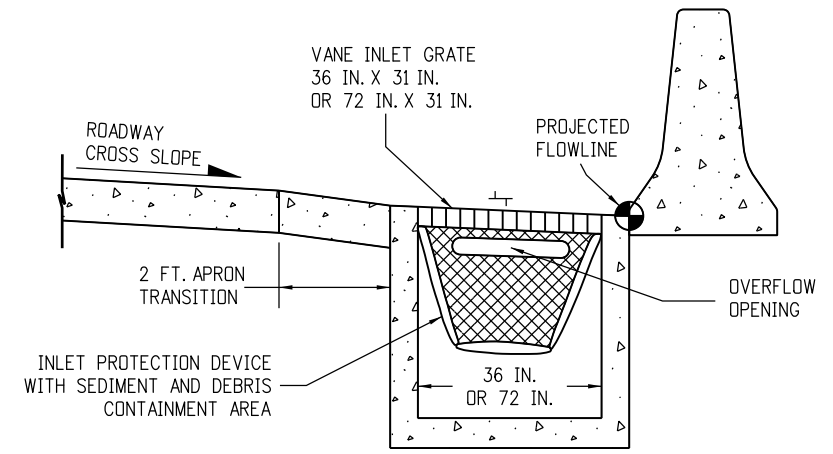


SECTION B-B  
OPTION A  
STORM DRAIN INLET PROTECTION (TYPE II)

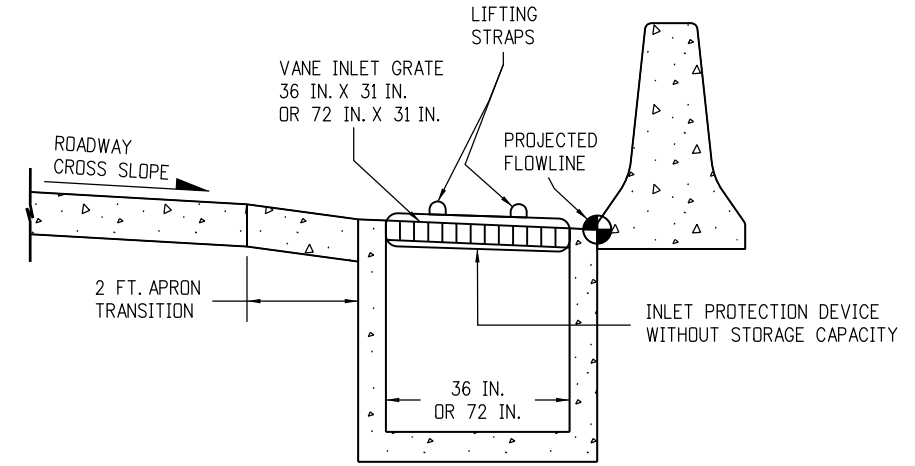


ISOMETRIC VIEW  
OPTION B  
STORM DRAIN INLET PROTECTION (TYPE II)

NOTE: THE PAY ITEM NUMBERS FOR STORM DRAIN INLET PROTECTION (TYPE II) ARE 208-00054 (EACH).



OPTION A  
STORM DRAIN INLET PROTECTION (TYPE III)

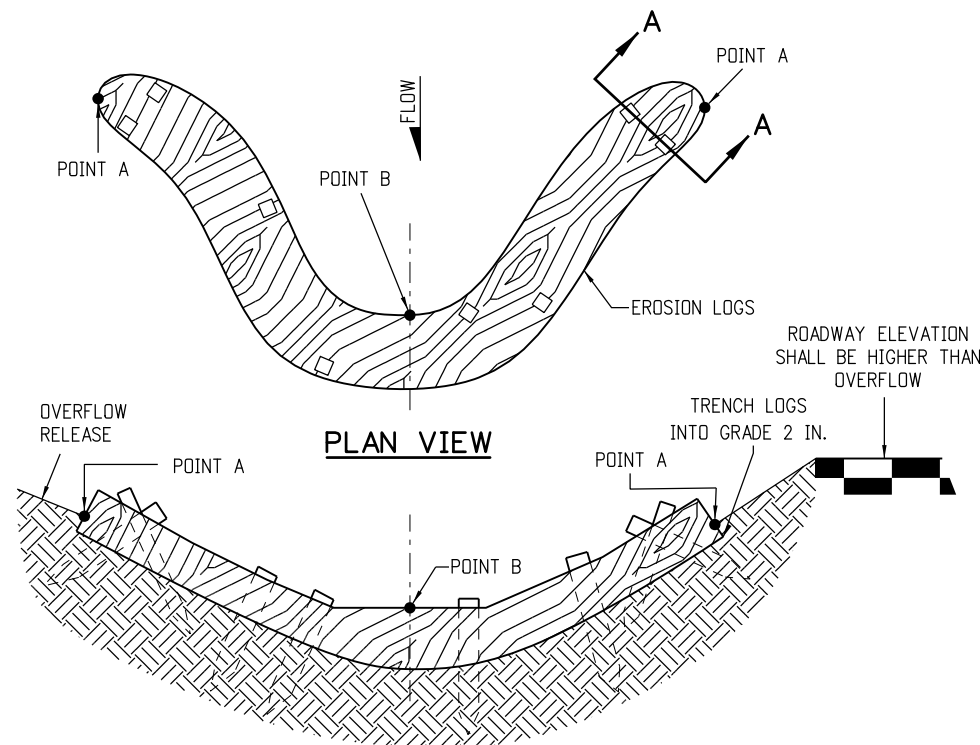


OPTION B  
STORM DRAIN INLET PROTECTION (TYPE III)

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE III) (EACH) IS 208-00056.

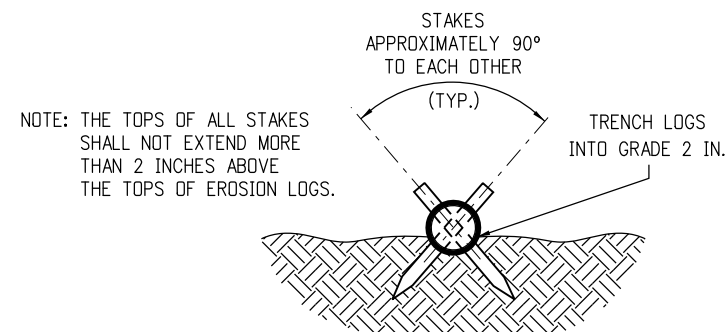
STORM DRAIN INLET PROTECTION TYPES

Computer File Information		<div>(R-X)</div> <div>(R-X)</div> <div>(R-X)</div> <div>(R-X)</div>	Sheet Revisions		<div>Colorado Department of Transportation</div> <div><div></div><div>2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868</div></div> <div>Project Development Branch</div> <div>JBK</div>	TEMPORARY EROSION CONTROL		STANDARD PLAN NO.	
Creation Date: 07/31/19			Date:	Comments				M-208-1	
Designer Initials: JBK									
Last Modification Date: 07/31/19									
Detailer Initials: LTA								Standard Sheet No. 5 of 11	
CAD Ver.: MicroStation V8    Scale: Not to Scale    Units: English								Issued by the Project Development Branch: July 31, 2019	
								Project Sheet Number: M&S 7 of 25	



NOTE: POINTS "A" SHALL BE A MINIMUM 4 IN. HIGHER THAN POINT "B".

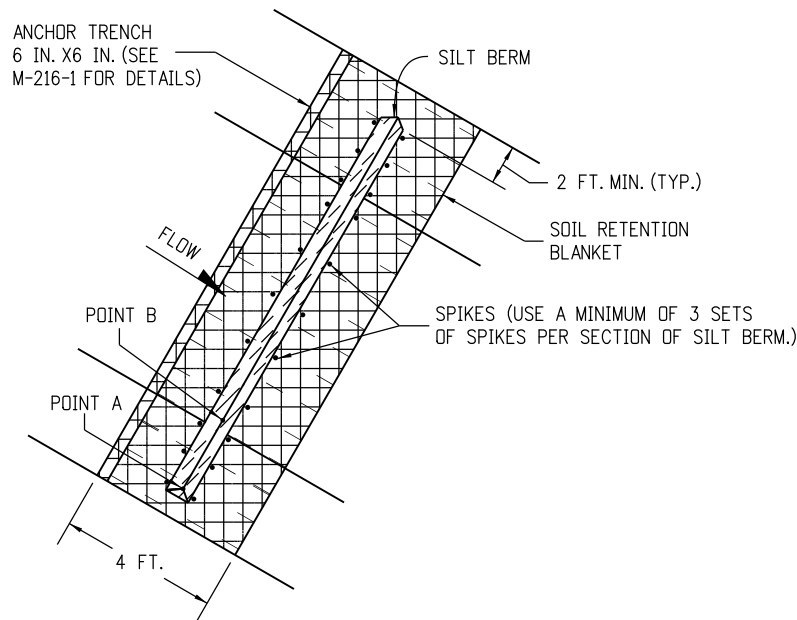
**ELEVATION**



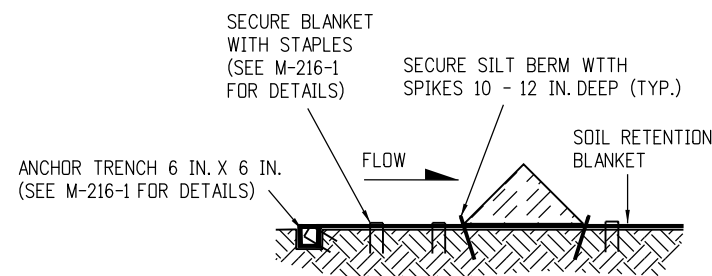
NOTES:

1. EROSION LOGS SHALL BE EMBEDDED 2 INCHES INTO THE SOIL.
2. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
3. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHALL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.

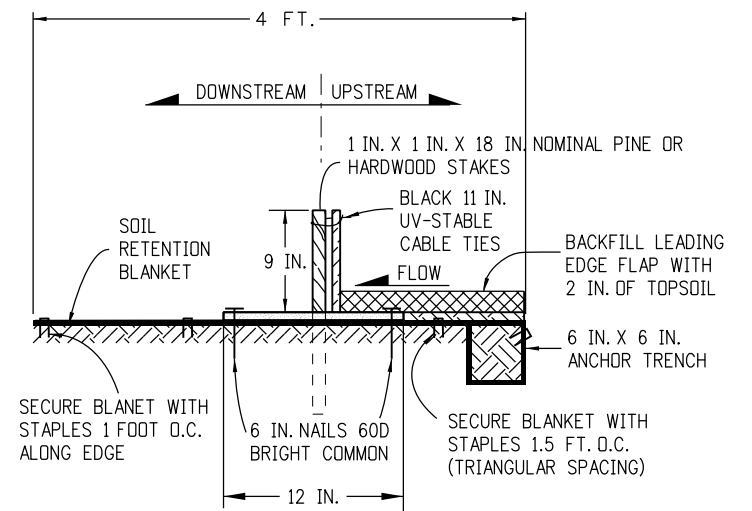
**EROSION LOG INSTALLATION**



**PLAN VIEW**



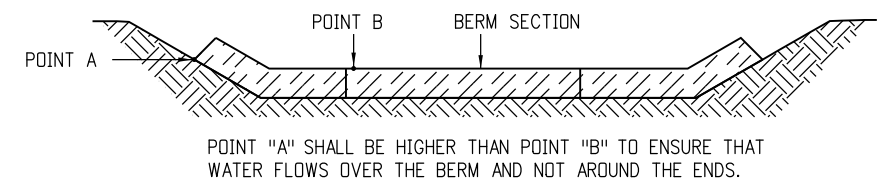
**SILT BERM (1) SECTION VIEW**



NOTES:

1. MINIMUM 4 NAILS PER SEGMENT (UPSTREAM).
2. MINIMUM 2 NAILS PER SEGMENT (DOWNSTREAM).
3. MINIMUM 2 WOOD STAKES PER SEGMENT.

**SILT BERM (2) SECTION VIEW**



**FRONT VIEW**

NOTES:

1. ANCHOR SOIL RETENTION BLANKET INTO TRENCH WITH 8 INCHES MIN. STAPLES PLACED AT 1 FOOT INTERVALS ALONG EDGE.
2. FILL AND COMPACT TRENCH.
3. SECTIONS OF THE SILT BERM SHALL BE OVERLAPPED WITH NO GAPS.
4. FOR SLOPE AND CHANNEL SPACING SEE THE "SECTION VIEW ALONG DITCH FLOWLINE" DETAIL ON SHEET 11 OF 11.
5. SOIL RETENTION BLANKET SHALL ALWAYS BE REQUIRED.
6. THE PAY ITEM NUMBER FOR SILT BERM (LF) IS 208-00004.

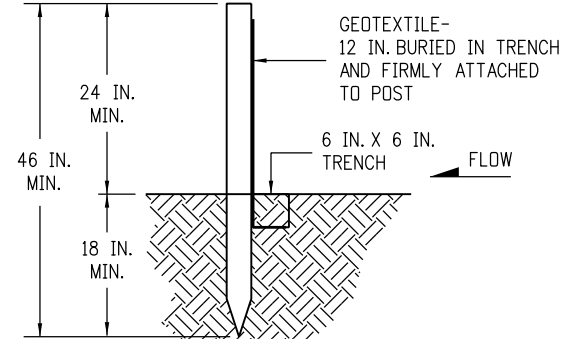
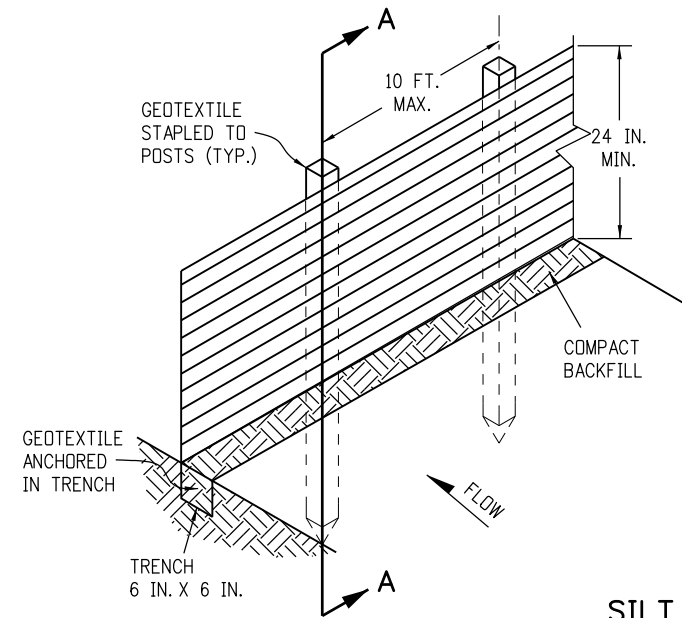
**SILT BERM INSTALLATION**

## DRAINAGE DITCH APPLICATIONS

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	TEMPORARY EROSION CONTROL	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 6 of 11	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number: M&S 8 of 25	
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)				Issued by the Project Development Branch: July 31, 2019		

Computer File Information		<div>(R-X)</div> <div>(R-X)</div> <div>(R-X)</div> <div>(R-X)</div>	Sheet Revisions		<div><div></div><div>Colorado Department of Transportation</div><div>2829 West Howard Place</div><div>CDDT HQ, 3rd Floor</div><div>Denver, CO 80204</div><div>Phone: 303-757-9021 FAX: 303-757-9868</div><div>Project Development Branch</div><div>JBK</div></div>	TEMPORARY		STANDARD PLAN NO.	
Creation Date: 07/31/19			Date:	Comments		EROSION CONTROL		M-208-1	
Designer Initials: JBK									
Last Modification Date: 07/31/19									
Detailer Initials: LTA									
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English									
						Issued by the Project Development Branch: July 31, 2019		Project Sheet Number: M&S 9 of 25	



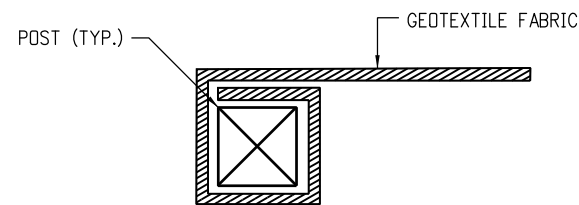


SECTION A-A

SILT FENCE

NOTES:

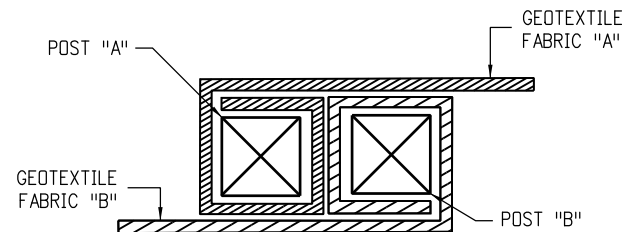
1. GEOTEXTILE SHALL BE ATTACHED TO WOOD POSTS WITH THREE OR MORE STAPLES PER POST. STAPLES SHALL BE HEAVY DUTY WIRE AND AT LEAST 1 INCH LONG.
2. WOOD POST SHALL BE 1 IN. X 1 IN. NOMINAL.
3. THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.
4. THE SILT FENCE SHALL BE PLACED ON THE CONTOUR (AT THE SAME ELEVATION  $\pm 6$  IN.). THE ENDS SHALL BE FLARED UP SLOPE (MINIMUM ELEVATION GAIN OF 18 IN.).



END SECTION DETAIL (PLAN VIEW)

NOTE:

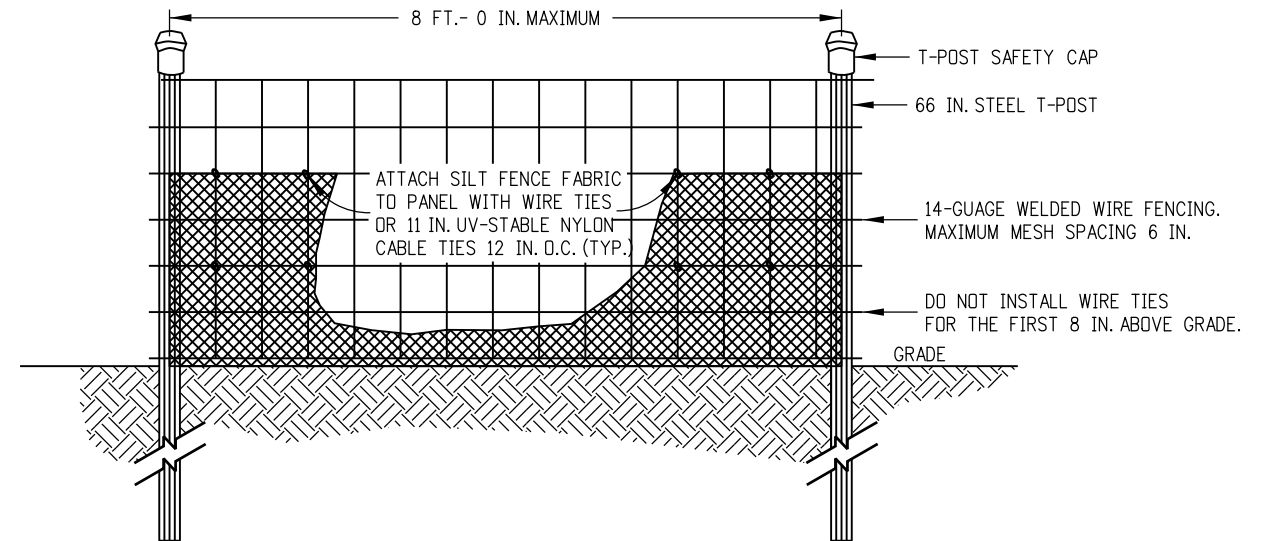
1. THE END OF THE SILT FENCE FABRIC SHALL BE WRAPPED APPROX. 6 INCHES AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.



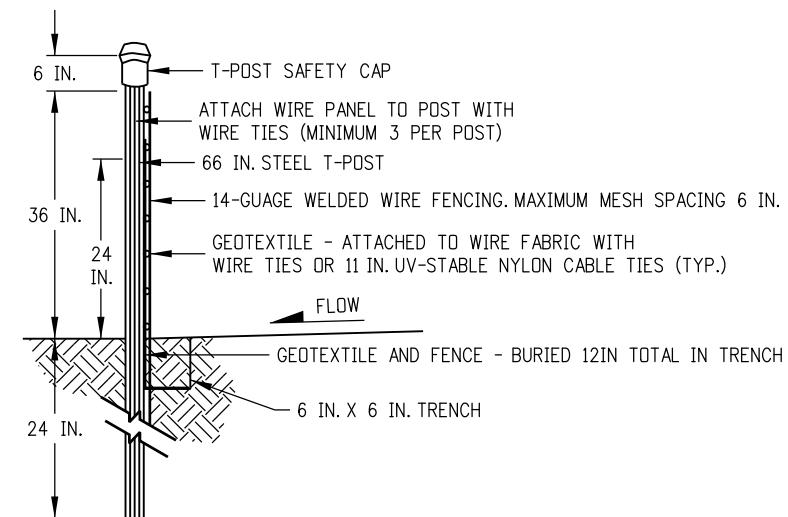
JOINING SECTION DETAIL (PLAN VIEW)

NOTES:

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.



ELEVATION VIEW



SIDE VIEW

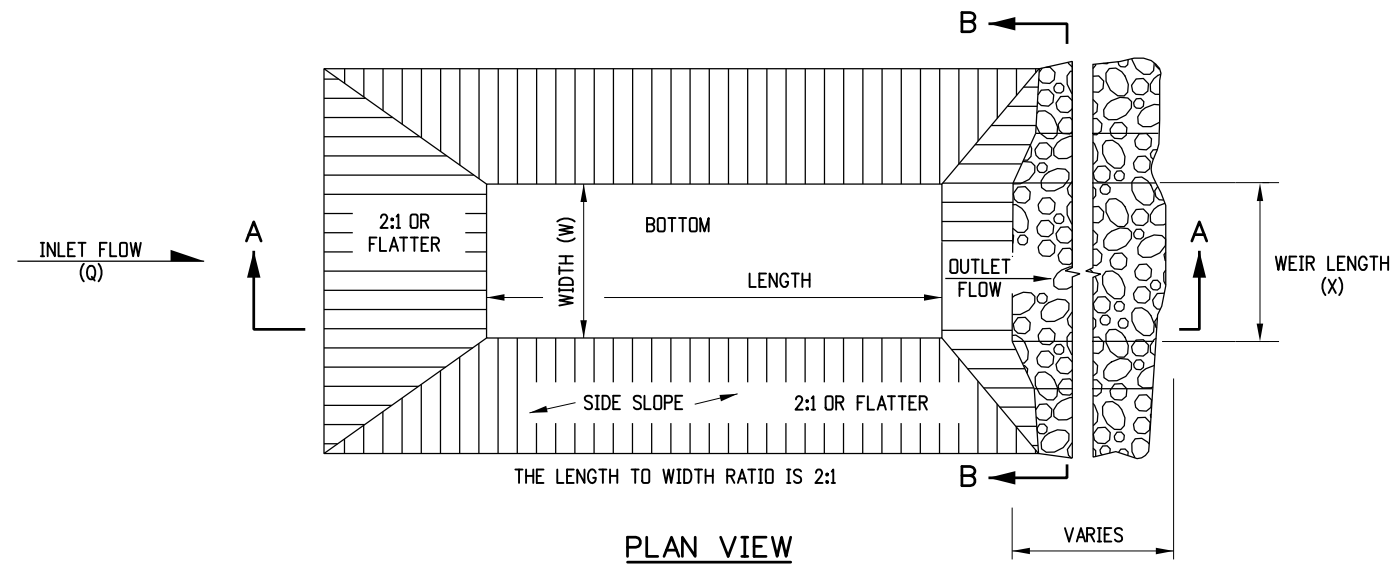
NOTES:

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A STEEL T-POST, THEN SECURED ALONG THE POST WITH WIRE TIES (MINIMUM 3 PER POST).
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.
3. SILT FENCES SHALL NOT BE USED FOR CHECK DAMS.
4. THE PAY ITEM NUMBER FOR SILT FENCE (REINFORCED) (LF) IS 208-00021.

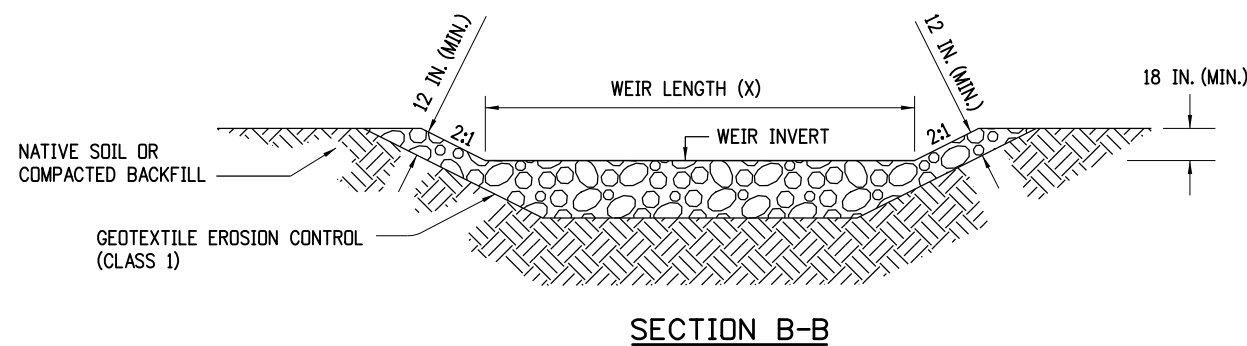
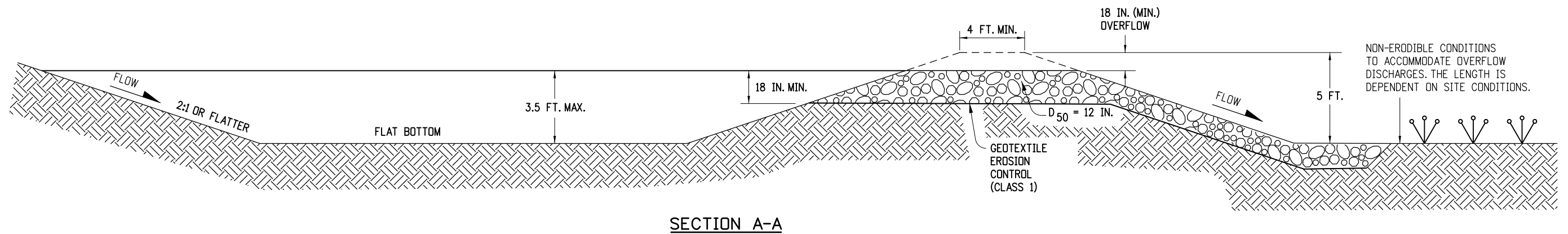
SILT FENCE (REINFORCED)

SILT FENCE APPLICATIONS

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	TEMPORARY EROSION CONTROL	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-208-1	
Designer Initials: JBK						Standard Sheet No. 8 of 11	
Last Modification Date: 07/31/19						Project Sheet Number: M&S 10 of 25	
Detailer Initials: LTA							
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)				Issued by the Project Development Branch: July 31, 2019		



- NOTES**
1. THE MAXIMUM DRAINAGE AREA IS 5 ACRES.
  2. THE MAXIMUM STRUCTURE LIFE IS 2 YEARS.
  3. THE STORAGE AREA IS 1800 CUBIC FEET PER ACRE.
  4. THE MAXIMUM EMBANKMENT HEIGHT SHALL BE 5 FT. MEASURED ON THE DOWNSTREAM SIDE.
  5. THE LENGTH/WIDTH RATIO MAY BE ADJUSTED TO MEET SITE CONDITIONS WHEN APPROVED BY THE ENGINEER.
  6. WIDTH (W) OF SEDIMENT TRAP IS APPROXIMATELY EQUAL TO THE WEIR LENGTH (X).
  7. SEDIMENT TRAP DESIGN SHALL BE APPROVED BY THE ENGINEER.
  8. THE DOWN GRADE FROM WEIR SHALL BE STABLE AND NON-ERODIBLE.
  9. THE PAY ITEM NUMBER FOR SEDIMENT TRAP (LF) IS 208-00033.

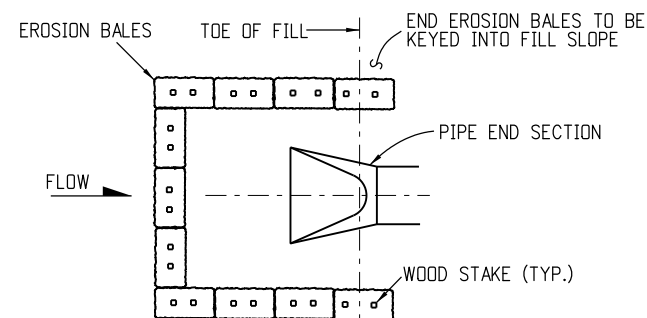
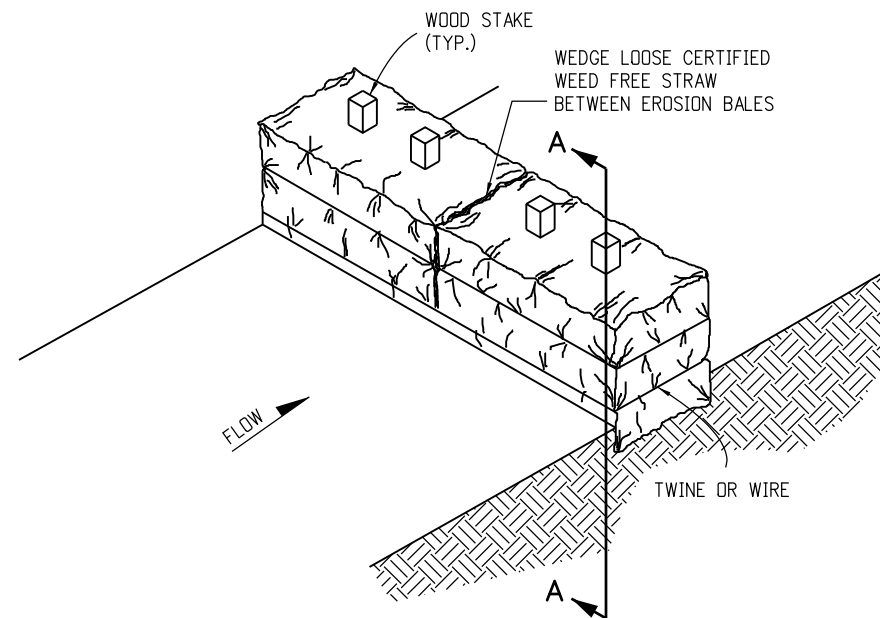
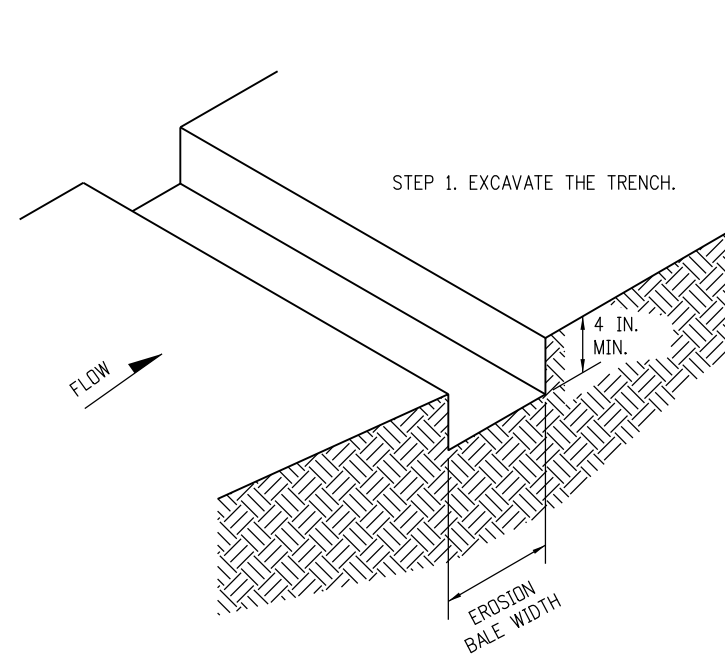


DRAINAGE AREA (ACRES)	WEIR LENGTH (FEET)
1	4
2	6
3	8
4	10
5	12

**WEIR LENGTH TABLE**

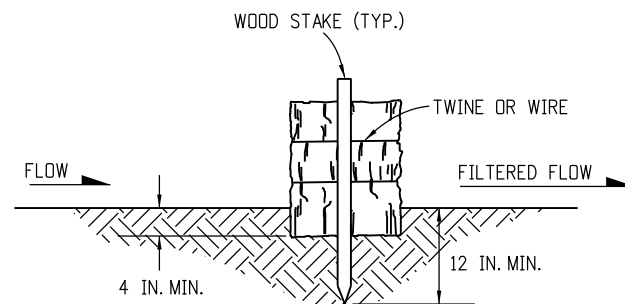
## SEDIMENT TRAP

Computer File Information		Sheet Revisions		<div> <div>  <div> Colorado Department of Transportation  2829 West Howard Place  CDOT HQ, 3rd Floor  Denver, CO 80204  Phone: 303-757-9021 FAX: 303-757-9868 </div> </div> <div> Project Development Branch </div> <div> JBK </div> </div>	<div> <div>TEMPORARY</div> <div>EROSION CONTROL</div> </div> <div>Issued by the Project Development Branch: July 31, 2019</div>	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 9 of 11	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number: M&S 11 of 25	
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English							



PLAN VIEW

EROSION BALE CULVERT INLET PROTECTION

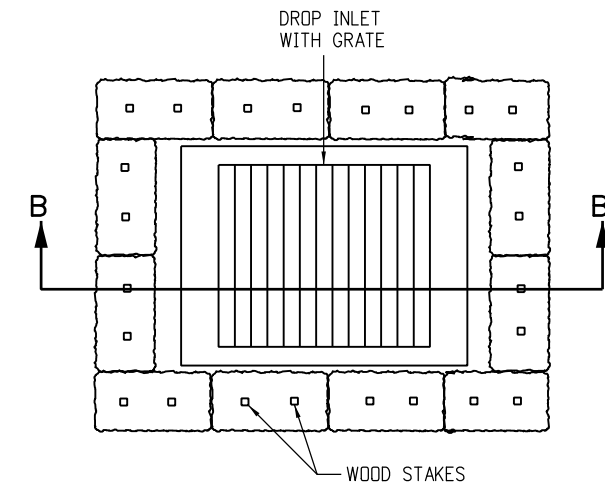


SECTION A-A

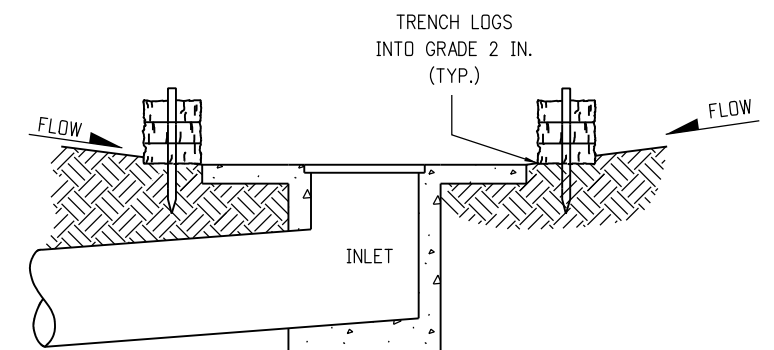
EROSION BALE TRENCHING AND STAKING

## NOTES

1. STAKES SHALL BE WOOD AND SHALL BE 2 IN. X 2 IN. X 30 IN. NOMINAL.
2. EROSION BALES SHALL BE 18 IN. X 18 IN. X 36 IN.
3. EROSION BALES SHALL BE ENTRENCHED 4 IN. MINIMUM INTO THE SOIL, THIGHTLY ABUTTED WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER.
4. EROSION BALES CANNOT BE USED FOR CHECK DAMS.
5. EROSION BALE FILTER SHALL BE LOWER THAN BERM ELEVATION OR USED IN A SUMP CONDITION.
6. THE PAY ITEM NUMBER FOR EROSION BALES (WEED FREE) (EA) IS 208-00011.



PLAN VIEW



SECTION B-B

NOTE: LOCATE EROSION BALES AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

EROSION LOG FILTER AT DROP INLET

## EROSION BALE APPLICATIONS

Computer File Information		<div><div><div></div><div></div></div><div><div></div><div></div></div></div>	Sheet Revisions		Colorado Department of Transportation		TEMPORARY		STANDARD PLAN NO.	
Creation Date: 07/31/19			Date:	Comments	<div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div>2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868</div>	M-208-1		Standard Sheet No. 10 of 11		
Designer Initials: JBK										
Last Modification Date: 07/31/19										
Detailer Initials: LTA										
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English										
				Project Development Branch	JBK	Issued by the Project Development Branch: July 31, 2019		Project Sheet Number: M&S 12 of 25		

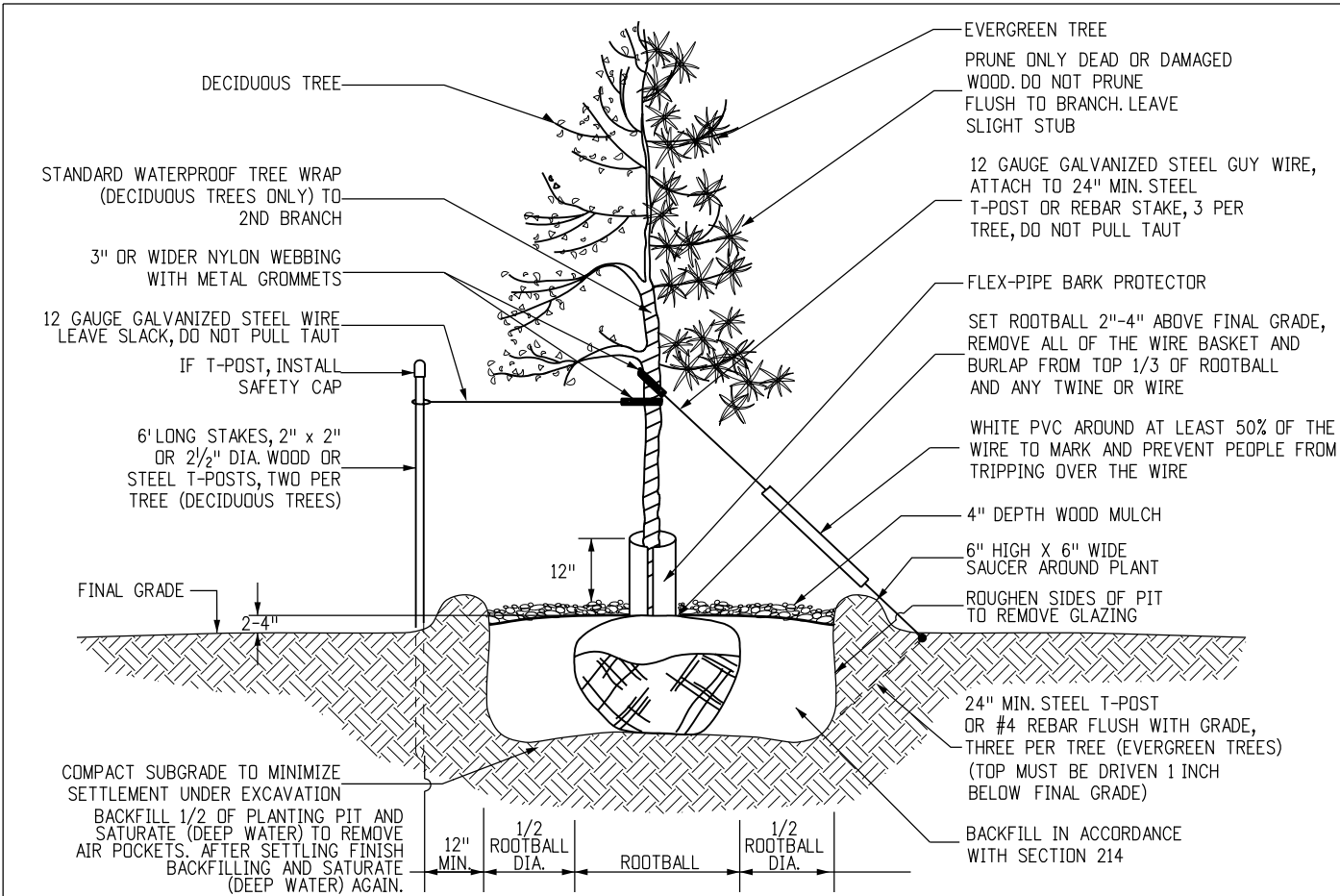




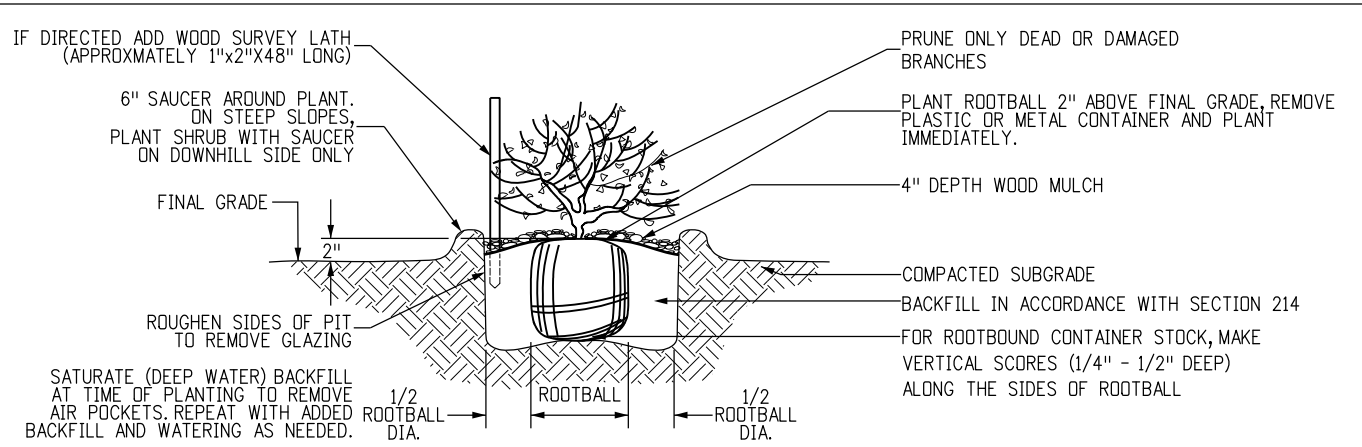
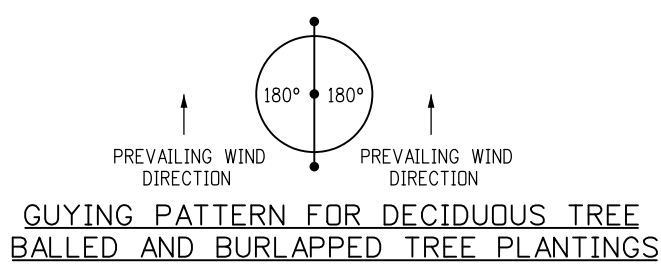
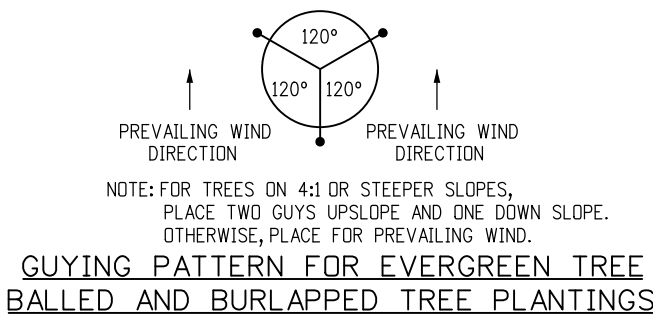
1. RIPRAP SIZE  $D_{50}$  = 6IN OR AS SHOWN ON THE PLANS.
2. THE GEOTEXTILE EROSION CONTROL SHALL BE CLASS 2 AND CONFORM TO THE REQUIREMENTS OF SUBSECTION 712.08.
3. THE ENDS OF RIPRAP CHECK DAM SHALL BE A MINIMUM OF 6 IN. HIGHER THAN CENTER OF CHECK DAM.
4. FOR USE AS TEMPORARY CHECK DAMS ONLY AND NOT FOR PERMANENT INSTALLATIONS.
5. THE PAY ITEM NUMBER FOR ROCK CHECK DAM (EA) IS 208-00041.

ROCK CHECK DAM

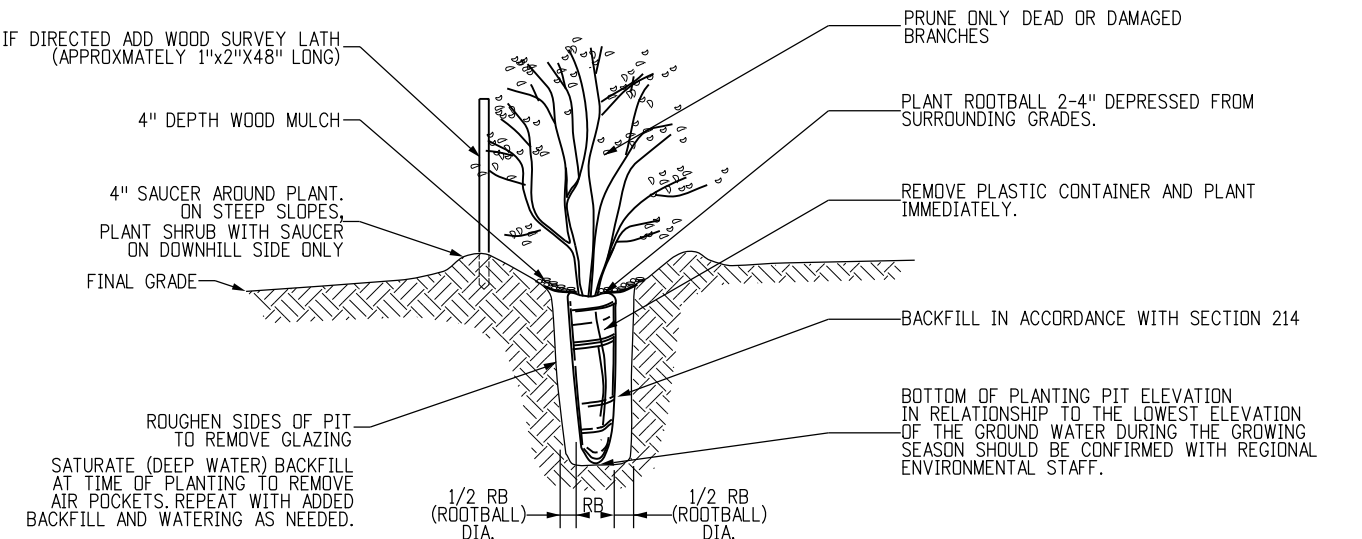
# TEMPORARY EROSION CONTROL



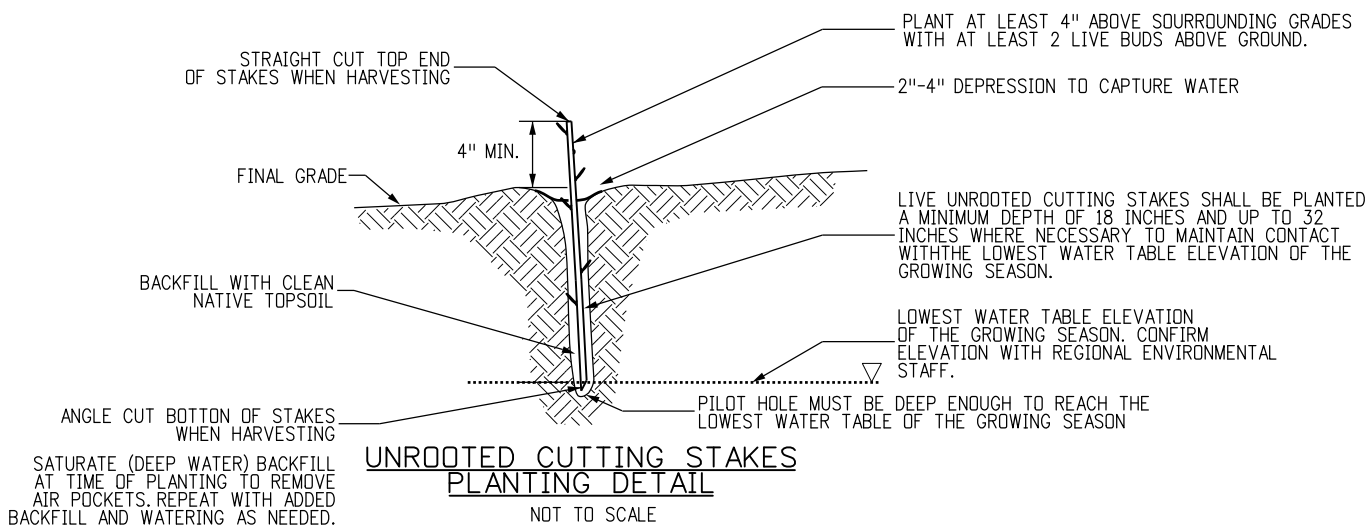
**DECIDUOUS AND EVERGREEN BALLED AND BURLAPPED TREE PLANTING AND GUYING DETAIL**  
(GUY AND STAKE DECIDUOUS TREES 2" AND LARGER CALIPER AND EVERGREEN TREES OVER 4' HEIGHT.)  
NOT TO SCALE



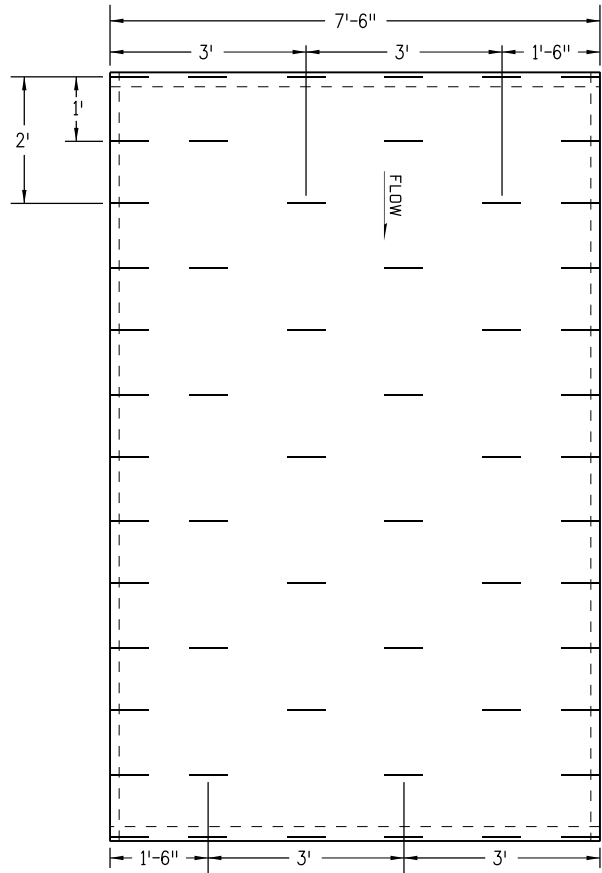
**STANDARD NURSERY STOCK CONTAINERS (#5, #10 AND #20) PLANTING DETAIL**  
NOT TO SCALE



**DEEP ROOTED UPLAND NURSERY CONTAINERS (DRC #10, #40, #60 AND #180) PLANTING DETAIL**  
NOT TO SCALE

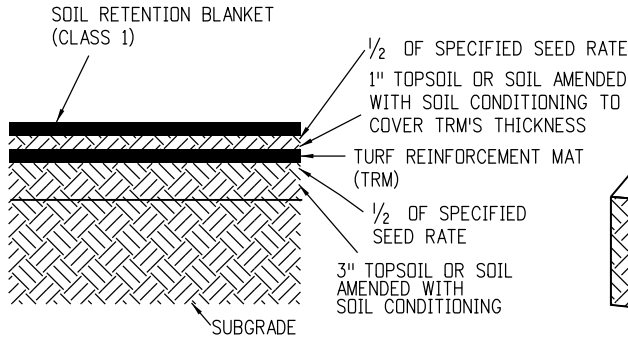


Computer File Information			<div><div></div><div></div></div>	Sheet Revisions		<div><div><div>Colorado Department of Transportation</div><div><div><div><div></div><div></div></div><div><div>2829 West Howard Place</div><div>CDOT HQ,</div><div>Denver, CO 80204</div><div>Phone: 303-757-9542</div></div></div><div><div>Project Development Branch</div><div>JBK</div></div></div></div></div>	NUSERY STOCK DETAILS		STANDARD PLAN NO.	
Creation Date: 07/31/19				Date:	Comments		M-214-1		Standard Sheet No. 1 of 1	
Designer Initials: MP	(R-X)									
Last Modification Date: 07/31/19	(R-X)									
Detailer Initials: LTA	(R-X)									
CAD Ver.: MicroStation V8    Scale: Not to Scale    Units: English	(R-X)									



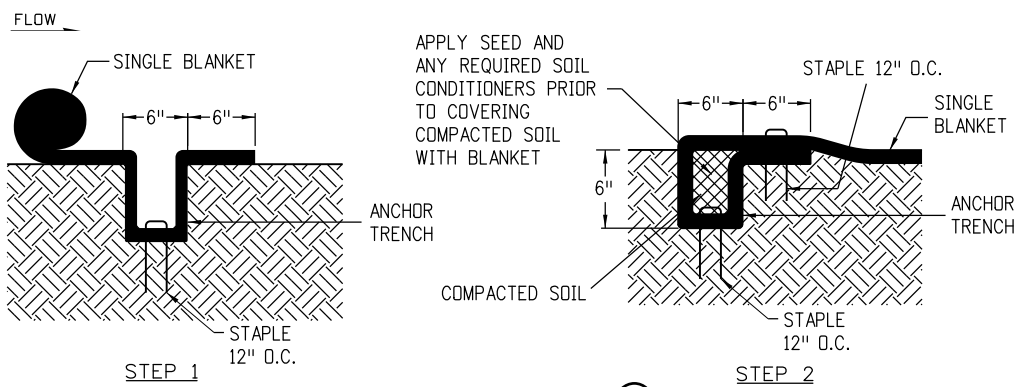
TYPICAL STAPLE PATTERN FOR CHANNEL APPLICATION

SEE SUBSECTION 216.05.



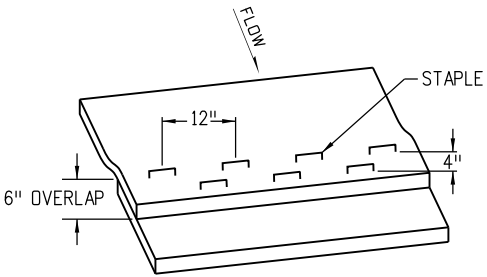
SOIL FILLED TRM APPLICATION

1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
2. APPLY HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
3. INSTALL TRM.
4. PLACE 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING INTO THE MATRIX TO COVER THE PRODUCT'S THICKNESS.
5. APPLY THE REMAINING HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
6. INSTALL SOIL RETENTION BLANKET (CLASS 1).



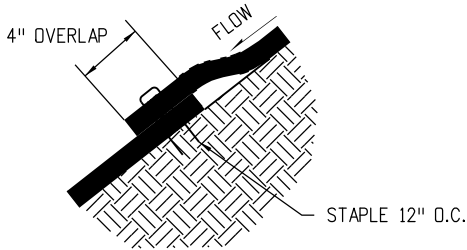
ANCHOR TRENCH (A)

TO BE USED AT THE BEGINNING AND END OF THE CHANNEL ACROSS IT'S ENTIRE WIDTH.



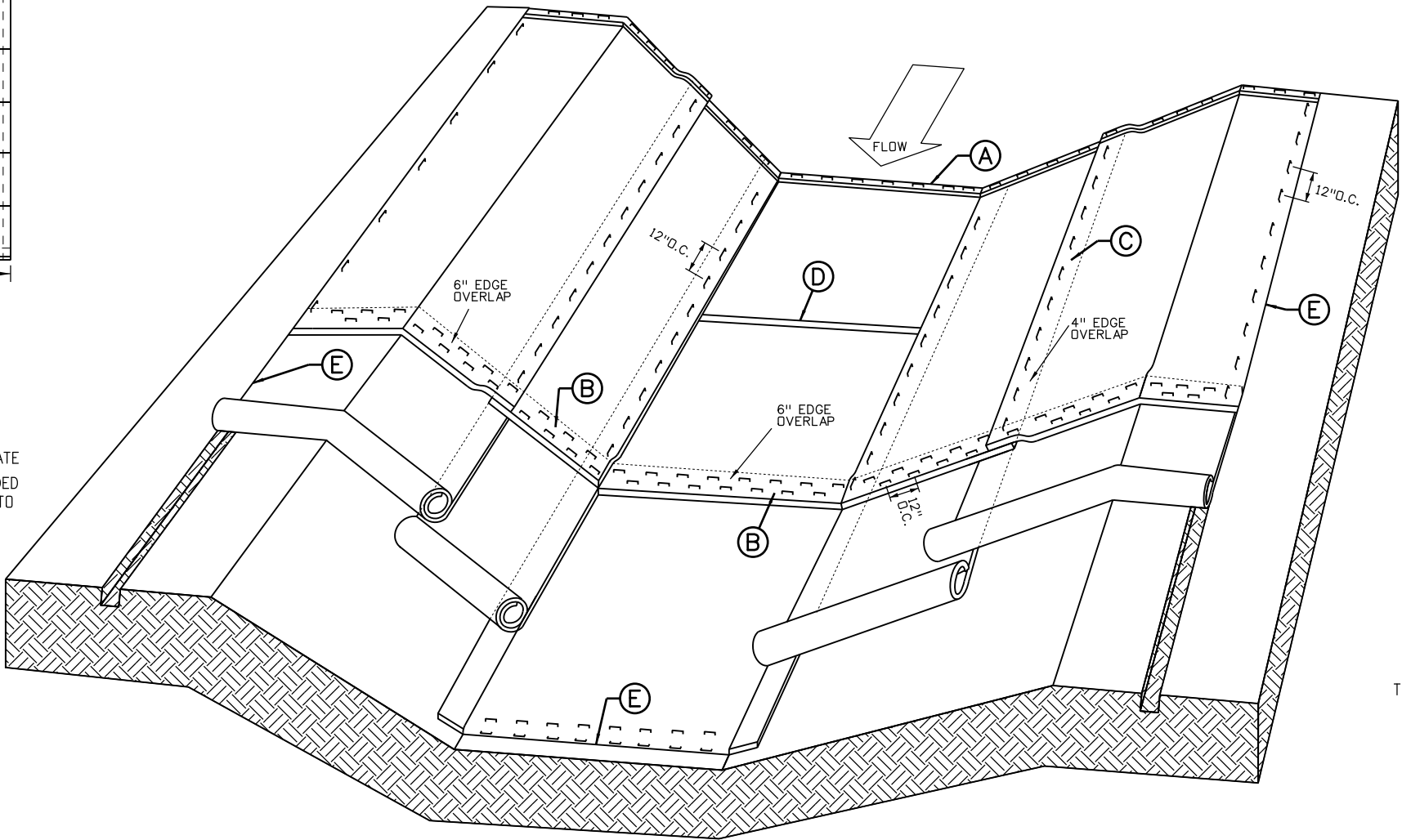
CONSECUTIVE ROLL OVERLAP (B)

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH UPSTREAM BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNSTREAM SIDE.



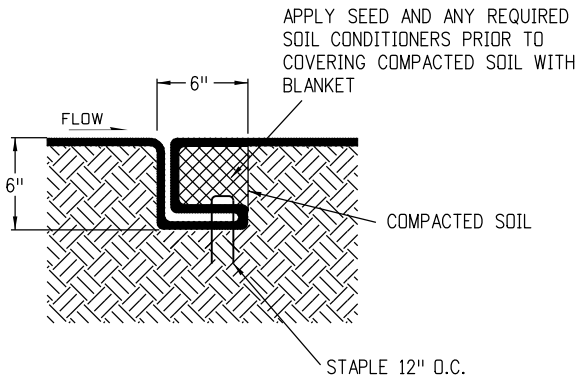
SIDE SEAM OVERLAP (C)

TO BE USED FOR OVERLAP WHEN 2 WIDTHS OF BLANKET ARE APPLIED SIDE BY SIDE WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



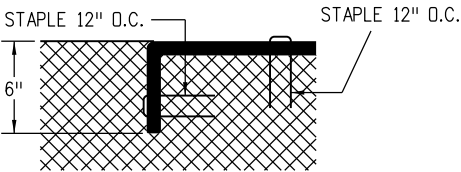
SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM)  
CHANNEL APPLICATION

IN ACCORDANCE WITH SECTION 216.



CHANNEL CHECK SLOT (D)


TO BE USED AT 30' INTERVALS IN CHANNEL FLOWLINE.



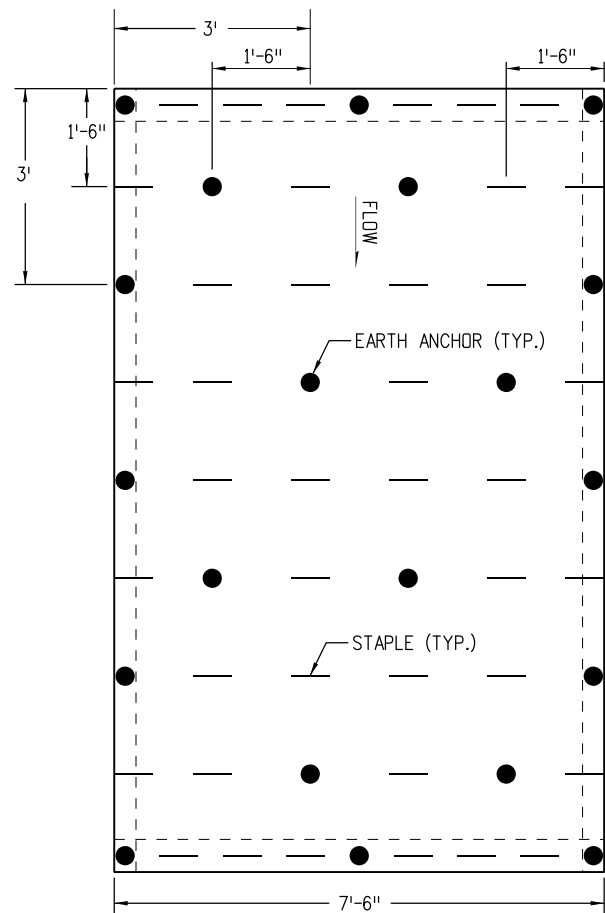
TERMINATION OF CHANNEL (E)

GENERAL NOTES

1. Z SHAPED FOLD TO BE USED ON SLOPE EVERY 35 FEET MAXIMUM.
2. STAPLE CHECK LOCATIONS SHOULD BE AT LEAST 15 FEET FROM THE BOTTOM OF SLOPE.

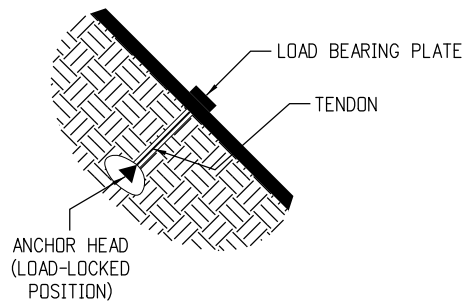
Computer File Information		Sheet Revisions		Colorado Department of Transportation  2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	SOIL RETENTION COVERING	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-216-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 1 of 2	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number: M&S 15 of 25	
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English					Issued by the Project Development Branch: July 31, 2019		





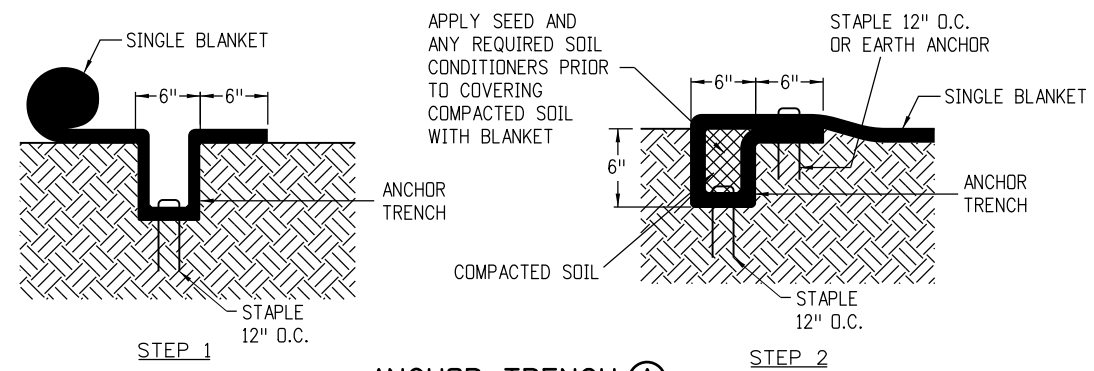
TYPICAL STAPLE OR EARTH ANCHOR PATTERN FOR SLOPE APPLICATION

IF EARTH ANCHORS ARE NOT SPECIFIED ON THE PLANS, ONLY STAPLES SHALL BE USED. SEE SUBSECTION 216.04



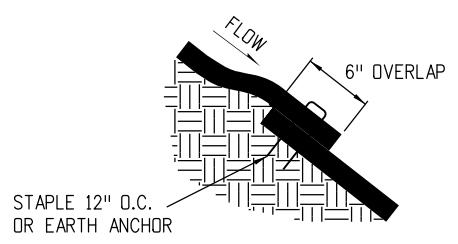
EARTH ANCHOR

- NOTES: 1. EARTH ANCHORS WILL BE USED INSTEAD OF STAPLES WHEN SPECIFIED IN THE PLANS.
2. EARTH ANCHORS SHALL BE PAID FOR SEPERATLY AS SPECIFIED IN SECTION 216.



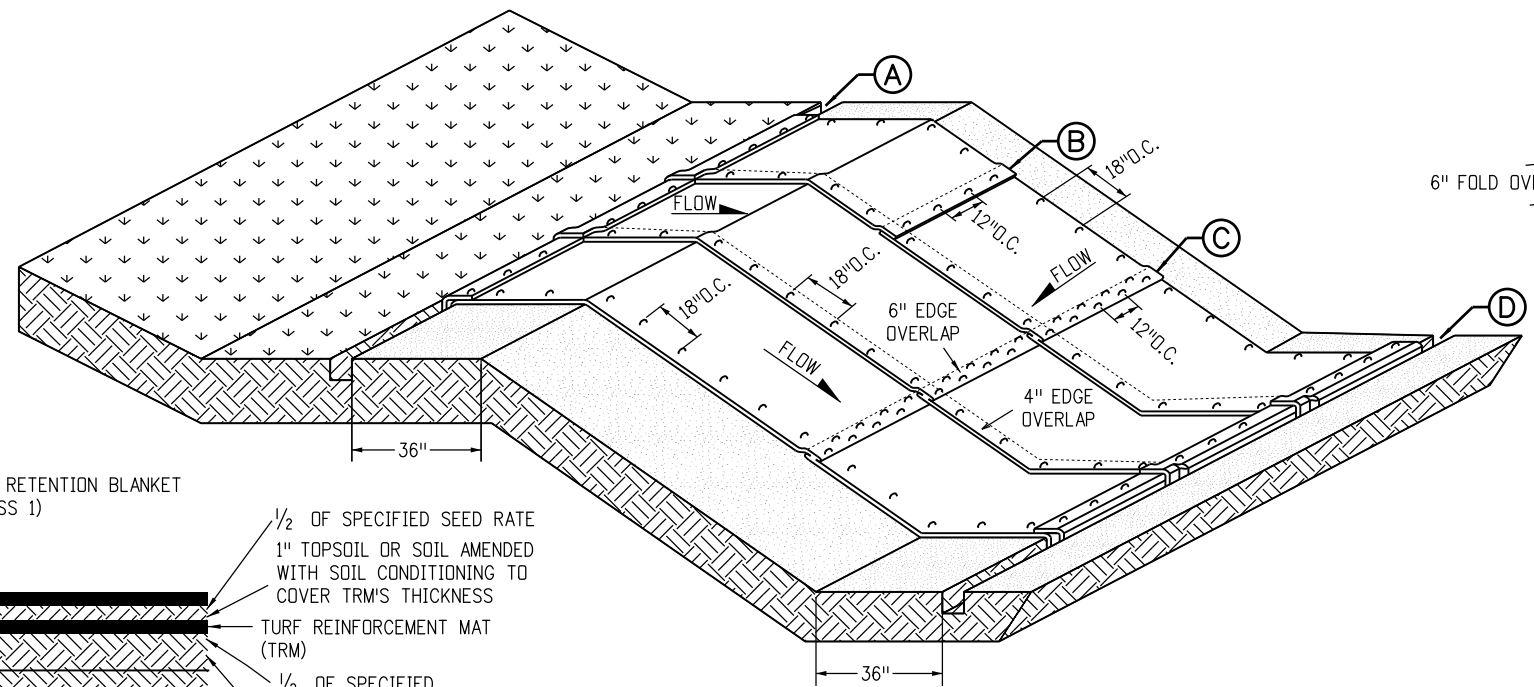
ANCHOR TRENCH ①

TO BE USED AT THE UPSLOPE AND DOWNSLOPE ENDS OF BLANKET ACROSS THE ENTIRE WIDTH OF SLOPE UNLESS SLOPE RUNS INTO RECEIVING WATER. (SEE DOWNSLOPE END STAPLE CHECK).



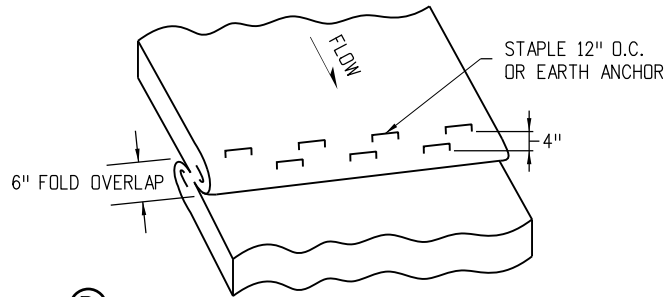
CONSECUTIVE ROLL OVERLAP ②

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.

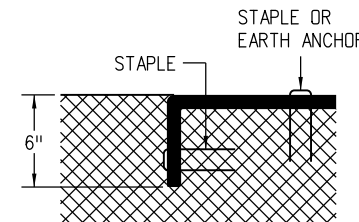


SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM) SLOPE APPLICATION

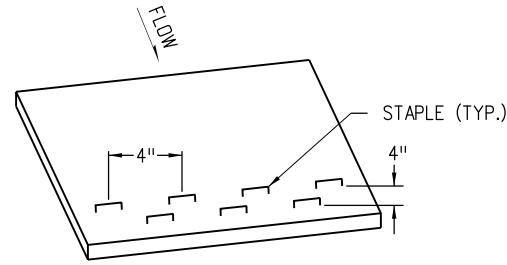
IN ACCORDANCE WITH SECTION 216.



STAPLE CHECK ③

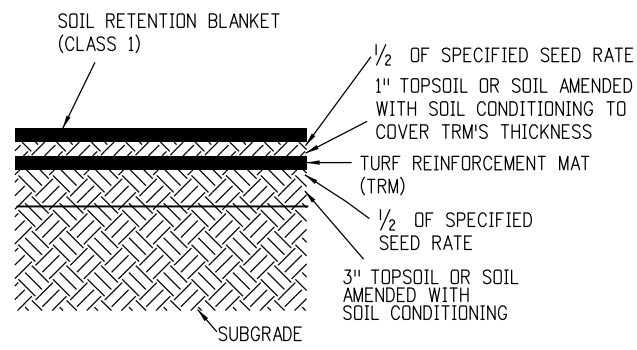


TERMINATION OF CHANNEL ④




DOWNSLOPE END STAPLE CHECK

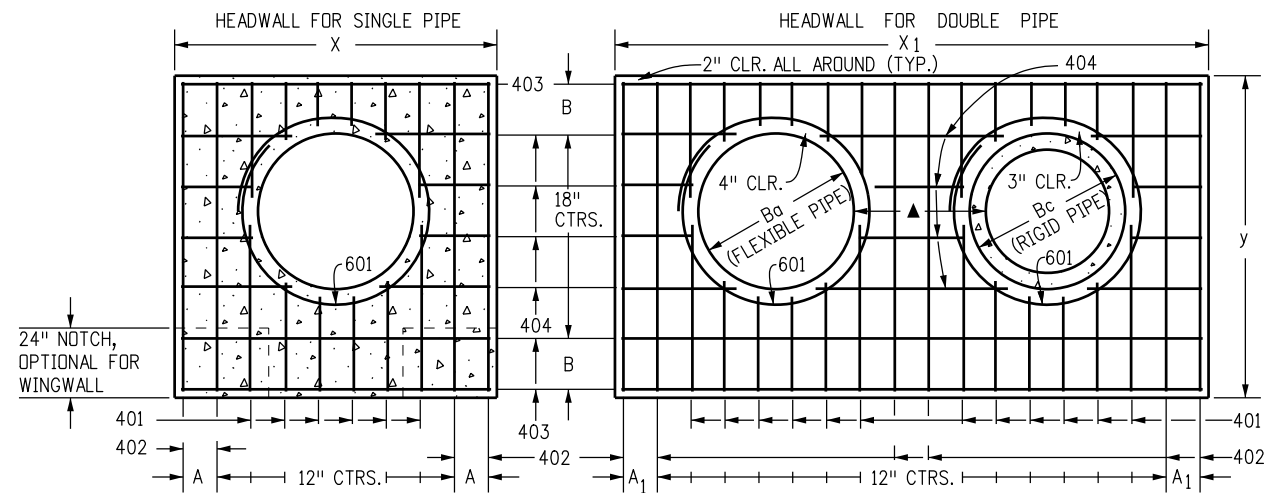
TO BE USED WHEN SLOPE RUNS INTO A RECEIVING WATER AND CANNOT BE EXTENDED 3 FEET BEYOND SLOPE.



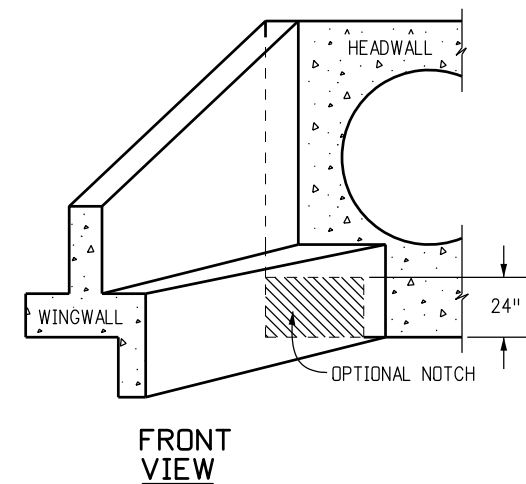
SOIL FILLED TRM APPLICATION

1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
2. APPLY HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
3. INSTALL TRM.
4. PLACE 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING INTO THE MATRIX TO COVER THE PRODUCT'S THICKNESS.
5. APPLY THE REMAINING HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
6. INSTALL SOIL RETENTION BLANKET (CLASS 1).

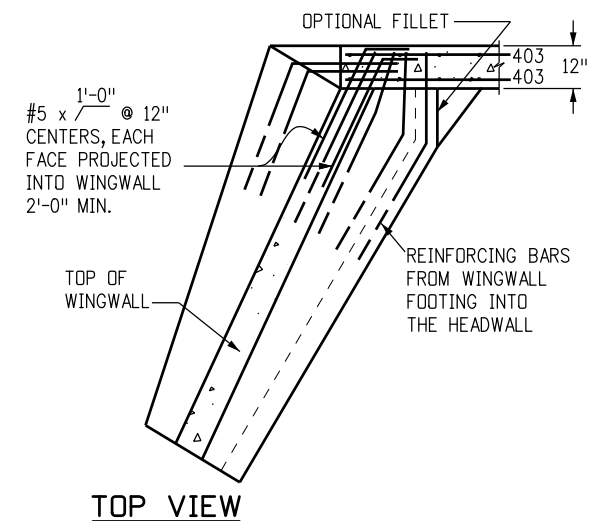
Computer File Information		Sheet Revisions		Colorado Department of Transportation  2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	SOIL RETENTION COVERING	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-216-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 2 of 2	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number: M&S 16 of 25	
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English					Issued by the Project Development Branch: July 31, 2019		



TYPICAL BAR LAYOUT FOR CONCRETE HEADWALLS

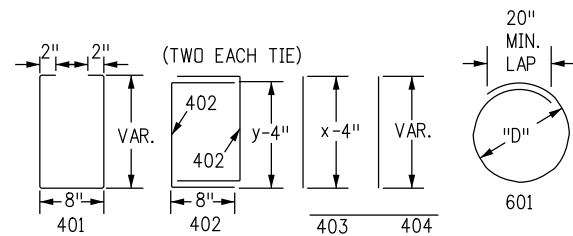


FRONT VIEW



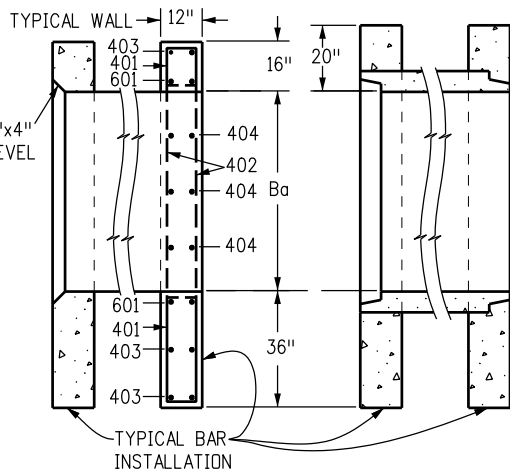
TOP VIEW

WINGWALL CONNECTION



RIGID PIPE =  $B_c + 6"$   
 FLEXIBLE PIPE =  $B_a + 8"$   
 FLEXIBLE ARCH =  $SPAN + 8"$   
 STRUCTURAL PLATE ARCH =  $RISE + 8"$

BAR BENDING

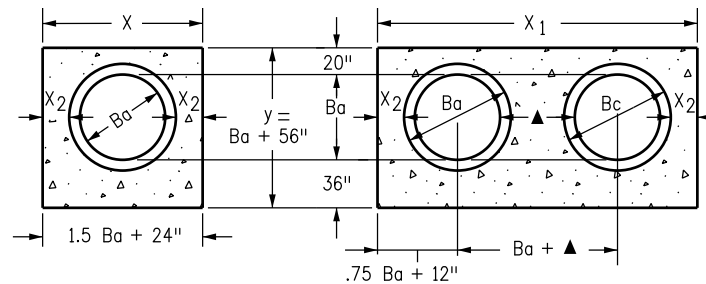


INLET OUTLET

ENDS OF FLEXIBLE PIPE

INLET OUTLET

ENDS OF RIGID PIPE

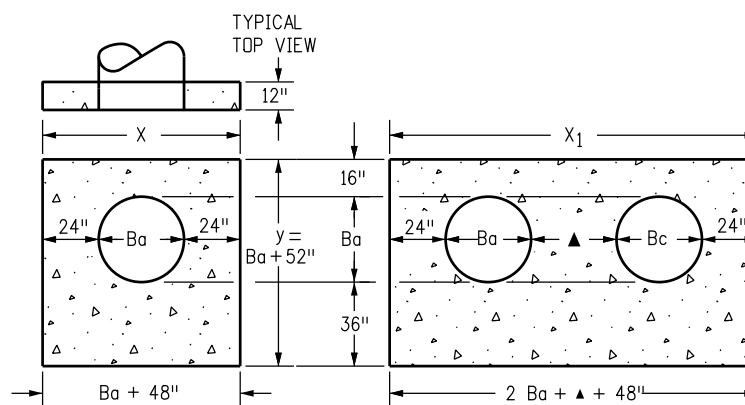


DIMENSIONS

Ba IN.	Bc IN.	X FT.-IN.	A IN.	X1 FT.-IN.	A1 IN.	y FT.-IN.	B IN.	X2 IN.	CONCRETE		STEEL	
									SGL CU. YD.	DBL CU. YD.	SGL LBS.	DBL LBS.
54	65	8-9	8 1/2	15-6	7	9-2	17	20	2.12	3.55	209	364
60	72	9-6	7	17-0	10	9-8	11	21	2.35	3.99	236	414
66	79	10-3	11 1/2	18-6	7	10-2	14	22	2.60	4.44	249	453
72	86	11-0	10	20-0	10	10-8	17	23	2.85	4.91	270	476
78	93	11-9	8 1/2	21-3	11	11-2	11	24	3.11	5.29	306	527
84	100	12-6	7	22-6	7	11-8	14	25	3.38	5.68	333	572
90	107	13-3	11 1/2	23-9	8 1/2	12-2	17	26	3.66	6.08	335	593
96	114	14-0	10	25-0	10	12-8	11	27	3.94	6.48	379	649
102	121	14-9	8 1/2	26-3	11 1/2	13-2	14	28	4.24	6.89	400	664
108	128	15-6	7	27-6	7	13-8	17	29	4.54	7.30	424	707

QUANTITIES

HEADWALL FOR RIGID ROUND PIPE

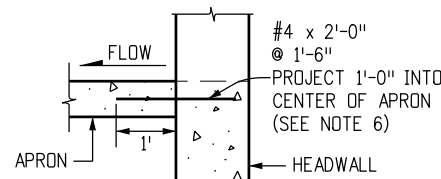


DIMENSIONS

Ba IN.	X FT.-IN.	A IN.	X1 FT.-IN.	A1 IN.	y FT.-IN.	B IN.	CONCRETE		STEEL	
							SGL CU. YD.	DBL CU. YD.	SGL LBS.	DBL LBS.
54	8-6	7	15-3	11 1/2	8-10	15	2.19	3.81	211	358
60	9-0	10	16-6	7	9-4	18	2.38	4.25	217	396
66	9-6	7	17-9	8 1/2	9-10	12	2.58	4.70	252	454
72	10-0	10	19-0	10	10-4	15	2.78	5.17	255	472
78	10-6	7	20-0	10	10-10	18	2.98	5.56	276	499
84	11-0	10	21-0	10	11-4	12	3.19	5.95	297	553
90	11-6	7	22-0	10	11-10	15	3.40	6.36	317	517
96	12-0	10	23-0	10	12-4	18	3.62	6.79	321	597
102	12-6	7	24-0	10	12-10	12	3.84	7.21	364	663
108	13-0	10	25-0	10	13-4	15	4.06	7.63	362	678

QUANTITIES

HEADWALL FOR FLEXIBLE ROUND PIPE



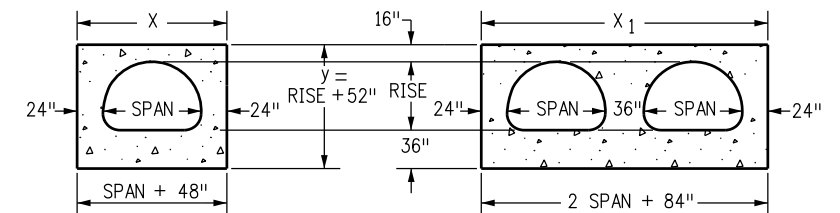
WHEN APRON IS REQUIRED

## GENERAL NOTES

- CONCRETE SHALL BE CLASS B.
- HEADWALL SHALL BE PERPENDICULAR TO THE PIPE  $\phi$  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  $\frac{3}{4}$  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  $\frac{1}{2}$  INSIDE DIAMETER APART, OR  $\frac{1}{2}$  INSIDE SPAN APART, OR 3 FT. APART (INCLUDING WALL THICKNESS), WHICHEVER IS LESS.

■ ADD  $0.89 \times (X \text{ OR } X_1) (\text{LB.})$  WHEN APRON IS REQUIRED.



DIMENSIONS

EQUIV. Ba IN.	SPAN IN.	RISE IN.	X FT.-IN.	A IN.	X1 FT.-IN.	A1 IN.	y FT.-IN.	B IN.	CONCRETE		STEEL	
									SGL CU. YD.	DBL CU. YD.	SGL LBS.	DBL LBS.
72	81	59	10-9	8 1/2	20-6	7	9-3	17 1/2	2.72	5.10	250	467
78	87	63	11-3	11 1/2	21-6	7	9-7	10 1/2	2.85	5.34	275	531
84	95	67	11-9	8 1/2	22-10	9	9-11	12 1/2	3.08	5.79	290	547
90	103	71	12-7	7 1/2	24-2	11	10-3	15	3.30	6.21	321	591
96	112	75	13-4	12	25-8	8	10-7	16 1/2	3.52	6.65	314	606
102	117	79	13-9	8 1/2	26-6	7	10-11	9 1/2	3.63	6.86	356	672
108	128	83	14-8	8	28-4	12	11-3	11 1/2	3.96	7.51	376	699

QUANTITIES

HEADWALL FOR FLEXIBLE PIPE ARCH

EQUIV. Ba IN.	SPAN FT.-IN.	RISE FT.-IN.	X FT.-IN.	A IN.	X1 FT.-IN.	A1 IN.	y FT.-IN.	B IN.	CONCRETE		STEEL	
									SGL CU. YD.	DBL CU. YD.	SGL LBS.	DBL LBS.
66	6-1	4-7	10-1	10 1/2	19-2	11	8-11	15 1/2	2.52	4.70	232	424
75	7-0	5-1	11-0	10	21-0	10	9-5	9 1/2	2.80	5.25	282	509
84	7-11	5-7	11-11	9 1/2	22-10	9	9-11	12 1/2	3.08	5.79	291	540
93	8-10	6-1	12-10	9	24-8	8	10-5	15 1/2	3.36	6.33	309	622
102	9-9	6-7	13-9	8 1/2	26-6	7	10-11	9 1/2	3.63	6.86	379	673
111	10-11	7-1	14-11	9 1/2	28-10	9	11-5	12 1/2	4.05	7.67	377	711
120	11-10	7-7	15-10	9	30-8	8	11-11	15 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	931
150	15-4	9-3	19-4	12	37-8	8	13-7	16 1/2	5.69	10.88	490	953
159	15-10	9-10	19-10	9	38-8	8	14-2	11	5.89	11.25	534	1019

DIMENSIONS

QUANTITIES

HEADWALL FOR STRUCTURAL PLATE ARCH

SKEW ANGLE A°	90	85	80	75	70	65	60	55	50	45	40	35	30
FACTOR (cosec A°)	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

SKEW FACTOR TABLE

## 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
(R-X)	
(R-X)	
(R-X)	
(R-X)	

## Colorado Department of Transportation

2829 West Howard Place  
 CDDT HQ, 3rd Floor  
 Denver, CO 80204  
 Phone: 303-757-9021 FAX: 303-757-9868

## Project Development Branch

JBK

# HEADWALL FOR PIPES

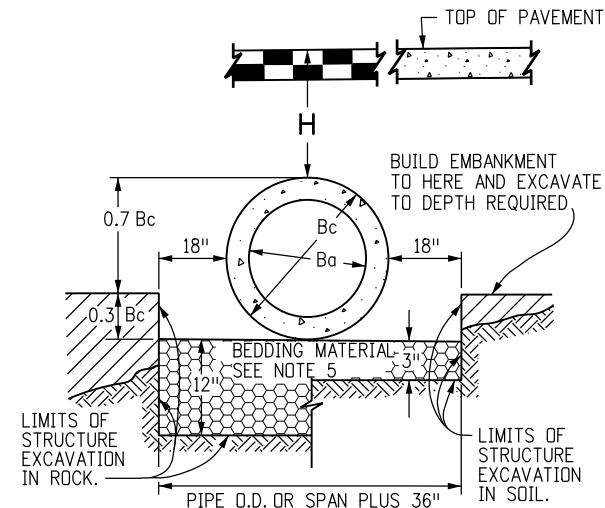
## STANDARD PLAN NO.

M-601-10

## Standard Sheet No. 1 of 1

Issued by the Project Development Branch: July 31, 2019

Project Sheet Number: M&S 17 of 25



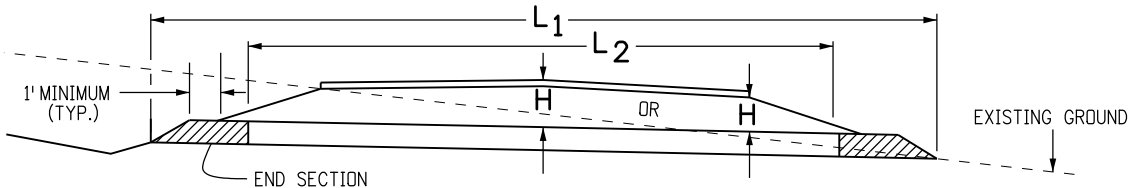
NOTE: Bc IS THE OUTSIDE DIMENSION FOR DIAMETER, SPAN OR RISE.

### PIPE INSTALLATION (WITH 0.7 PROJECTION RATIO)

CIRCULAR (CIR)			VERTICAL ELLIPTICAL (VE)				HORIZONTAL ELLIPTICAL (HE)			
PIPE SIZE= <i>Ba</i> (INSIDE DIA)	WALL THICKNESS	0.3 <i>Bc</i> (OUTSIDE DIA)	SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE	SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE
IN.		FT.	IN.				IN.			
12	2	0.40					23	14	2-3/4	0.49
15	2-1/4	0.49								
18	2-1/2	0.58								
21	2-3/4	0.66					30	19	3-1/4	0.66
24	3	0.75					34	22	3-1/2	0.73
27	3-1/4	0.84								
30	3-1/2	0.92					38	24	3-3/4	0.79
33	3-3/4	1.01								
36	4	1.10	29	45	4-1/2	1.35	45	29	4-1/2	0.95
42	4-1/2	1.28	34	53	5	1.58	53	34	5	1.10
48	5	1.45	38	60	5-1/2	1.78	60	38	5-1/2	1.23
54	5-1/2	1.62	43	68	6	2.00	68	43	6	1.38
60	6	1.80	48	76	6-1/2	2.23	76	48	6-1/2	1.53
66	6-1/2	1.97	53	83	7	2.43	83	53	7	1.68
72	7	2.15	58	91	7-1/2	2.65	91	58	7-1/2	1.83
78	7-1/2	2.32	63	98	8	2.85	98	63	8	1.98
84	8	2.50	68	106	8-1/2	3.08	106	68	8-1/2	2.13
90	8-1/2	2.68	72	113	9	3.28	113	72	9	2.25
96	9	2.85	77	121	9-1/2	3.50	121	77	9-1/2	2.40
102	9-1/2	3.02	82	128	9-3/4	3.69	128	82	9-3/4	2.54
108	10	3.20	87	136	10	3.90	136	87	10	2.68

△ ALSO EQUIVALENT ROUND DIMENSION FOR ELLIPTICAL PIPE.

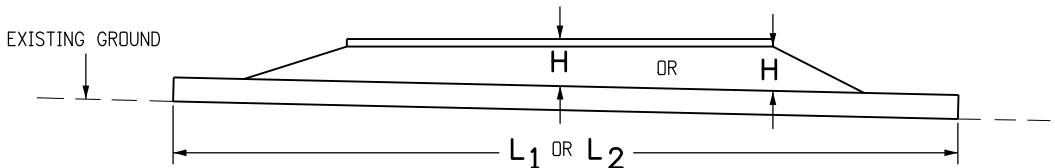
### DIMENSIONS FOR REINFORCED CONCRETE PIPE (FOR INFORMATION ONLY)



### CONCRETE PIPE WITH END SECTIONS

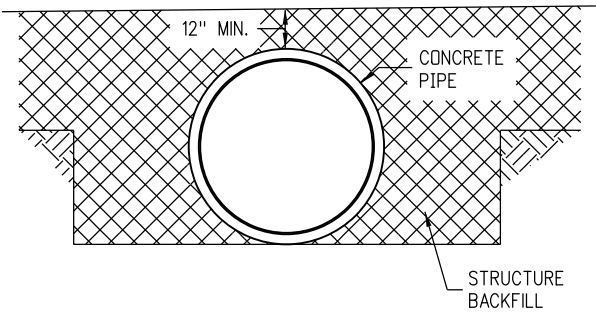
NOTE: USE THE **H** THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

- H** = HEIGHT OF FILL OVER TOP OF PIPE, INCLUDING PAVEMENT THICKNESS.  
**L<sub>1</sub>** = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.  
**L<sub>2</sub>** = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.



### CONCRETE PIPE WITHOUT END SECTIONS

NOTE: USE THE **H** THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.



### CONSTRUCTION MINIMUM COVER FOR RIGID PIPE

TYPE OF PIPE	HEIGHT OF FILL OVER TOP OF PIPE, <b>H</b> (FEET)				
	CLASS OF PIPE (0.01 IN. CRACK D-LOAD)				
	CLASS CIR II CLASS VE II CLASS HE II	CLASS CIR III CLASS VE III CLASS HE III	CLASS CIR IV CLASS VE IV CLASS HE IV	CLASS CIR V CLASS VE V	CLASS VE VI
	1000 D	1350 D	2000 D	3000 D	4000 D
CIRCULAR (CIR)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	
VERTICAL ELLIPTICAL (VE)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	± 45 TO 62
HORIZONTAL ELLIPTICAL (HE)	1 TO 18	1 TO 25	± 25 TO 37		

### ALLOWABLE RANGE OF HEIGHTS FOR FILL OVER REINFORCED CONCRETE PIPE

(ALL SIZES)

### GENERAL NOTES

#### REINFORCED CONCRETE PIPE

- FILL HEIGHTS GREATER THAN MAXIMUM ALLOWED IN THE HEIGHTS OF FILL TABLE ON THIS SHEET REQUIRE SPECIAL DESIGN OF STRUCTURE.
- PIPE DESIGN IS BASED ON SAFETY FACTOR OF 1.33 ON ULTIMATE STRENGTH.
- THE HEIGHTS OF FILL OVER TOP OF PIPE ARE BASED ON UNIT WEIGHT OF SOIL AT 135 LBS. PER CUBIC FT.
- PIPE CLASS IS DETERMINED FROM 0.01 IN. CRACK D-LOAD.
- BEDDING IS CLASS B (MODIFIED) (FROM CONCRETE PIPE DESIGN MANUAL-AMERICAN CONCRETE PIPE ASSOCIATION) WITH SETTLEMENT RATIO  $R = 0.0_{sd}$  (YIELDING BED). BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 2. BEDDING MATERIAL FOR RIGID PIPE IN ROCK SHALL BE 12 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 1.
- CHANGES IN DESIGN FACTORS REQUIRE COMPENSATING CHANGES IN PIPE DESIGN.
- MINIMUM WALL THICKNESS DIMENSIONS ARE BASED ON AASHTO M 170 (WALL B) FOR CIRCULAR PIPE, AND AASHTO M 207 FOR ELLIPTICAL PIPE.
- SPACING FOR MULTIPLE PIPE INSTALLATIONS SHALL CONFORM TO THE DETAILS SHOWN ON STANDARD PLAN M-206-1.
- WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL PIPE INSTALLATION SHALL BE USED.

#### NONREINFORCED CONCRETE PIPE

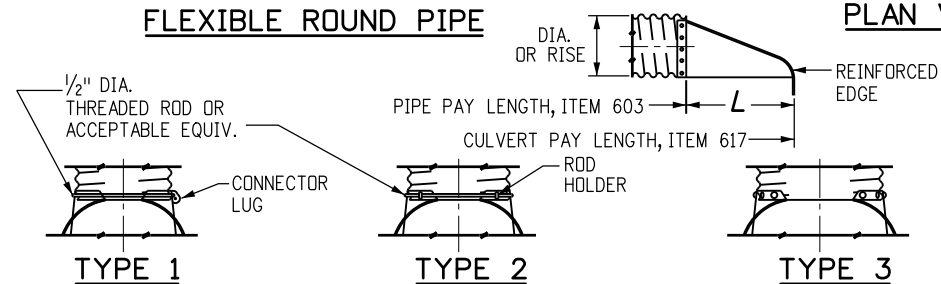
- AT THE OPTION OF THE CONTRACTOR, NONREINFORCED CONCRETE PIPE CONFORMING TO AASHTO M 86 MAY BE USED IN LIEU OF REINFORCED CONCRETE PIPE FOR ALL SIZES 36 INCHES IN DIAMETER AND SMALLER. THE NONREINFORCED CONCRETE PIPE SHALL MEET THE SAME D-LOAD TO PRODUCE THE ULTIMATE LOAD UNDER THE THREE-EDGE BEARING METHOD AS SPECIFIED FOR REINFORCED CONCRETE PIPE IN CONFORMANCE WITH AASHTO M 170. THE CONTRACTOR SHALL PROVIDE WRITTEN CERTIFICATION OF CONFORMANCE. THE WALL THICKNESS OF THE NONREINFORCED PIPE MAY BE INCREASED AS REQUIRED TO MEET D-LOAD REQUIREMENT.
- ALL REQUIREMENTS FOR REINFORCED CONCRETE PIPE, EXCEPT THOSE REFERRING TO REINFORCEMENT, SHALL APPLY TO NONREINFORCED CONCRETE PIPE.

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	REINFORCED CONCRETE PIPE	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-603-2	
Designer Initials: JBK						Standard Sheet No. 1 of 1	
Last Modification Date: 07/31/19						Project Sheet Number: M&S 18 of 25	
Detailer Initials: LTA							
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)				Issued by the Project Development Branch: July 31, 2019		



PIPE DIA.	THICKNESS	DIMENSIONS					
		<i>A</i>	<i>B</i>	<i>H</i>	<i>L</i>	<i>W</i>	<i>T</i>
IN.							
12	0.064	6	6	6	21	24	34
18	0.064	8	10	6	31	36	46
21	0.064	9	12	6	36	42	52
24	0.064	10	13	6	41	48	58
30	0.079	12	16	8	51	60	70
36	0.079	14	19	9	60	72	94
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

### FLEXIBLE ROUND PIPE



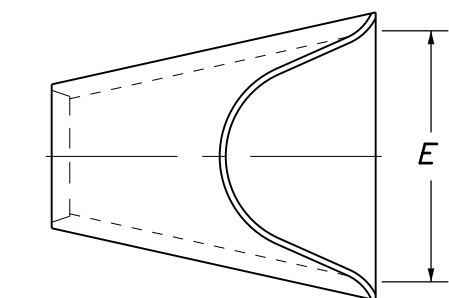
**TYPE 1**  
FOR 18 IN. THRU 24 IN. ROUND PIPE WITH ANNULAR CORRUGATIONS. NOT TO BE USED ON HELICALLY-FORMED PIPE UNLESS RECORRUGATED.

**TYPE 2**  
FOR 30 IN. THRU 36 IN. ROUND PIPE WITH ANNULAR CORRUGATIONS. NOT TO BE USED ON HELICALLY-FORMED PIPE UNLESS RECORRUGATED.

**TYPE 3**  
FOR 42 IN. THRU 84 IN. ROUND PIPE WITH ANNULAR CORRUGATIONS AND ALL SIZES WITH HELICAL CORRUGATIONS AND FOR ALL METAL PIPE ARCH CULVERTS. SHOP ATTACH A 24 IN. MIN. LENGTH OF ANNULAR PIPE WITH GALV. RIVETS OR BOLTS, SPOT WELDS, OR 2 IN. LONG SKIP WELDS ON 8 IN. CTRS. REPAIR BURNT GALVANIZING IN ACCORDANCE WITH SUBSECTION 707.09.

### TYPICAL CONNECTIONS

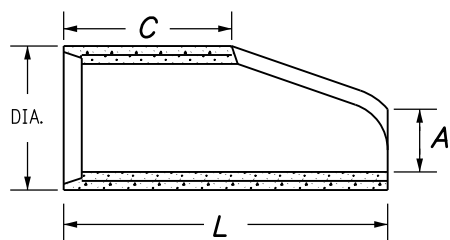
### END SECTION AND CONNECTION DETAILS FOR ROUND AND ARCH METAL PIPES



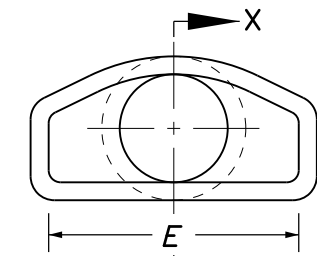
### PLAN

### REINFORCED CONCRETE CIRCULAR PIPE

PIPE I.D.	DIMENSIONS			
	A	C	L	E
IN.				
18	10	48	78	36
24	10	48	78	48
30	14	36	96	60
36	18	36	96	72
42	24	36	96	78
48	28	24	96	84
54	30	36	96	90
60	36	36	96	96
72	34	20	96	108

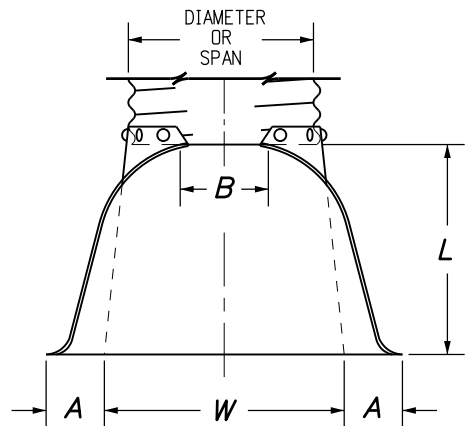


### SECTION X-X



### END VIEW

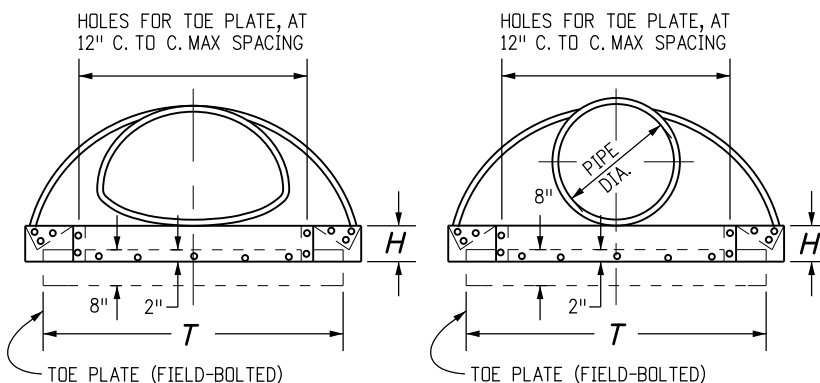
### END SECTION FOR REINFORCED CONCRETE CIRCULAR PIPE



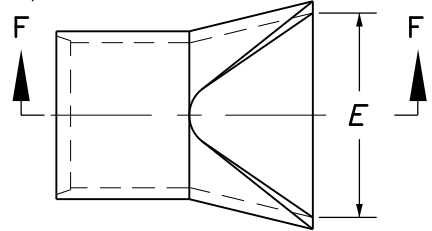
### PLAN VIEW

PIPE ARCH	THICK- NESS	DIMENSIONS					
		<i>A</i>	<i>B</i>	<i>H</i>	<i>L</i>	<i>W</i>	<i>T</i>
SPAN x RISE		(±1")	(MAX.)	(±1")	(±1.5")	(±2")	
IN.							
21 x 15	0.064	7	10	6	23	36	46
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	39	60	70
42 x 29	0.079	12	18	8	46	75	85
49 x 33	0.109	13	21	9	53	85	103
57 x 38	0.109	18	26	12	63	90	108
64 x 43	0.109	18	30	12	70	102	120
71 x 47	0.109	18	33	12	77	114	132

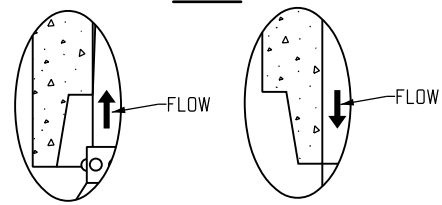
### FLEXIBLE PIPE ARCH



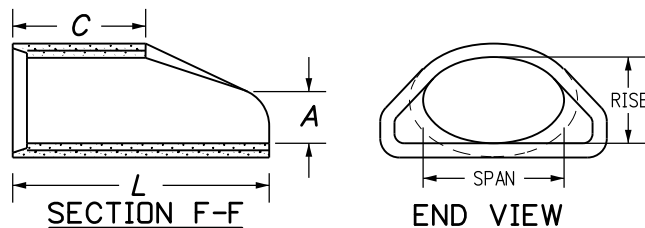
### ELEVATIONS



### PLAN



### DETAIL A



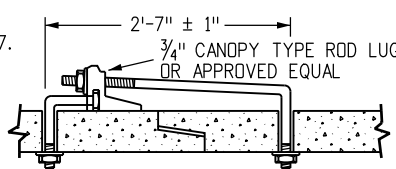
### SECTION F-F

### END VIEW

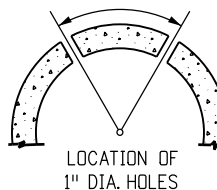
EQUIVALENT CIRCULAR DIA.	DIMENSIONS			
	NOMINAL SPAN x RISE	A	C	L
IN.				
24	30	19	9	33
30	38	24	10	18
36	45	29	12	24
42	53	34	16	36
48	60	38	21	36
54	68	43	26	36
60	76	48	30	36

### END SECTION FOR REINFORCED CONCRETE ELLIPTICAL PIPE

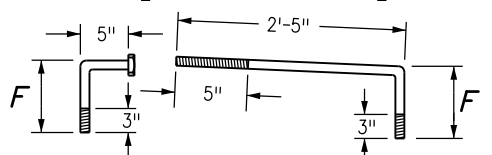
3/4" GALVANIZED ANCHOR BOLTS, NUTS AND WASHERS, MILD STEEL, ASTM A 307. ROD LUG SHALL BE GALVANIZED OR COATED WITH EPOXY PAINT OR APPROVED EQUAL.



60° MAX. 30° MIN.



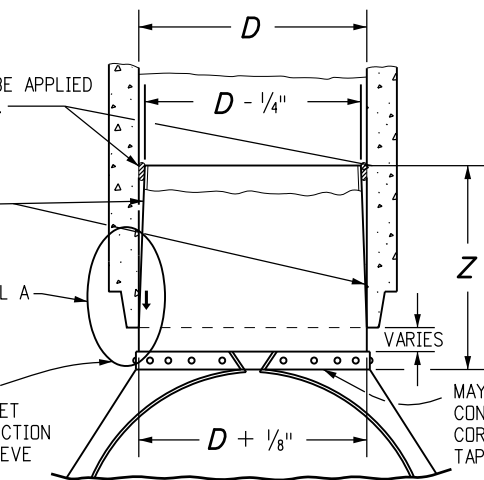
### CONCRETE JOINT FASTENER (TWO PER JOINT)



PIPE DIAMETER IN.	F
18 - 30	5
36 - 42	6
48 - 60	7
72 - 84	9

### STEEL END SECTION FOR CONCRETE CIRCULAR PIPE

(ALTERNATIVE FOR CONCRETE END SECTION)



D	Z (MIN.)
IN.	
18 - 24	12
30 AND 36	16
42 AND LARGER	24

NOTE: METAL END SECTION SHALL BE FIRMLY WEDGED INTO PIPE END BEFORE BACKFILLING.

Colorado Department of Transportation  
2829 West Howard Place  
CDOT HQ, 3rd Floor  
Denver, CO 80204  
Phone: 303-757-9021 FAX: 303-757-9868  
Project Development Branch JBK

## CONCRETE AND METAL END SECTIONS

Issued by the Project Development Branch: July 31, 2019

### STANDARD PLAN NO.

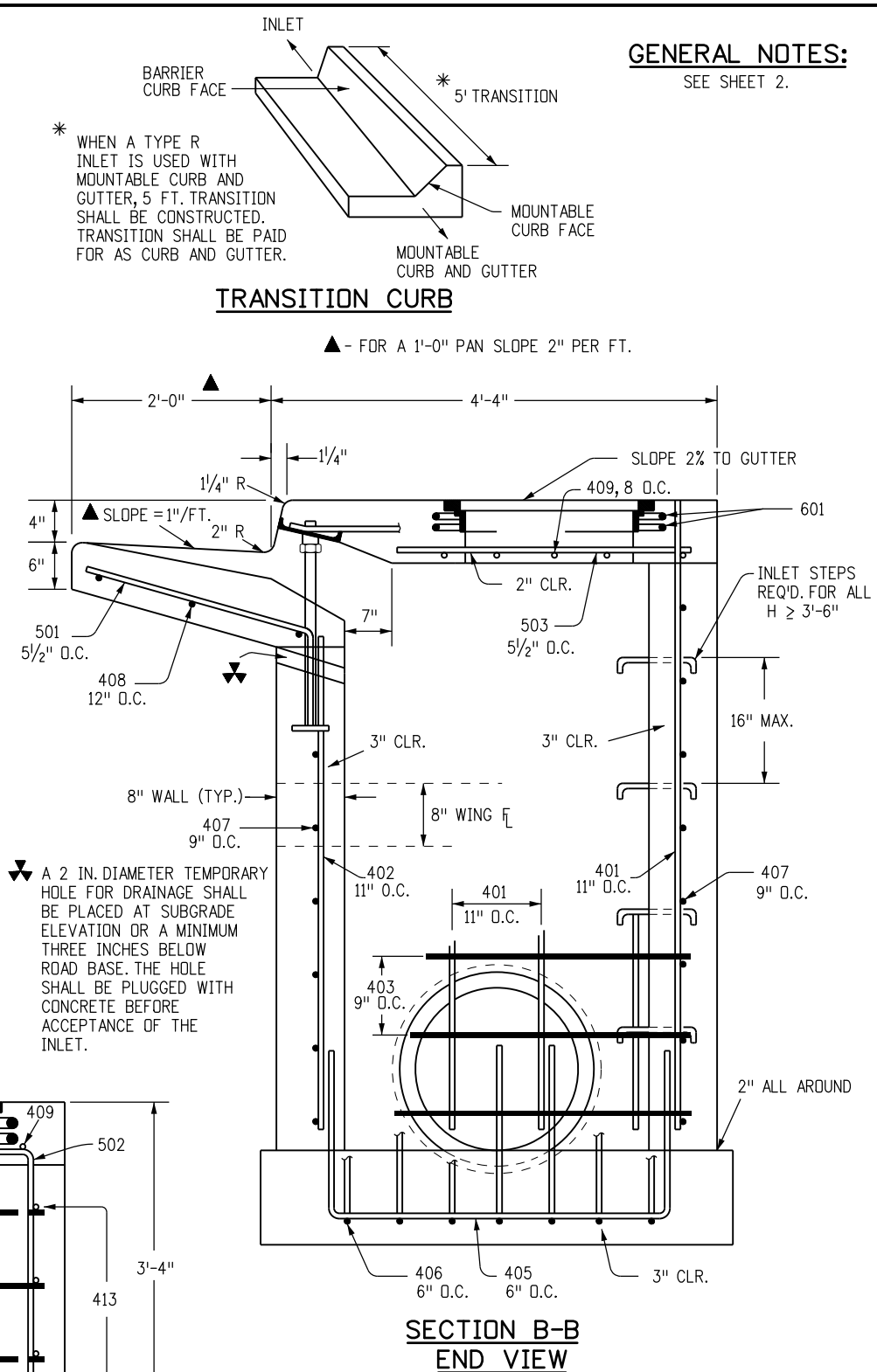
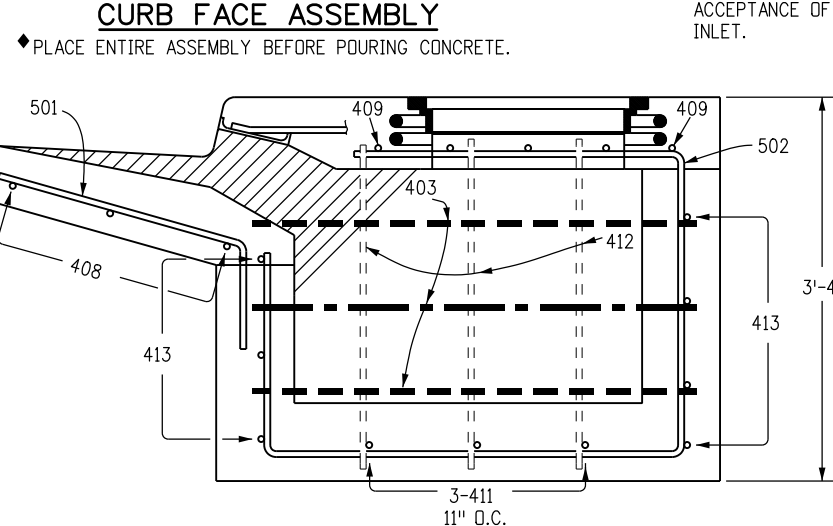
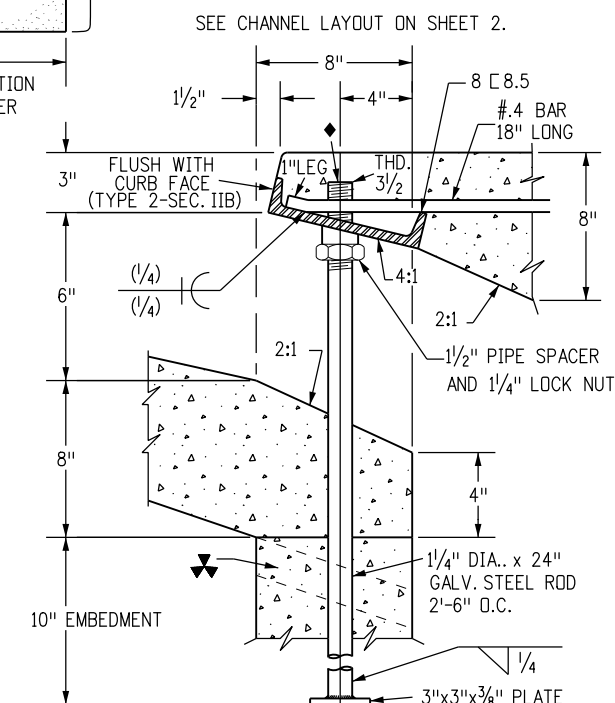
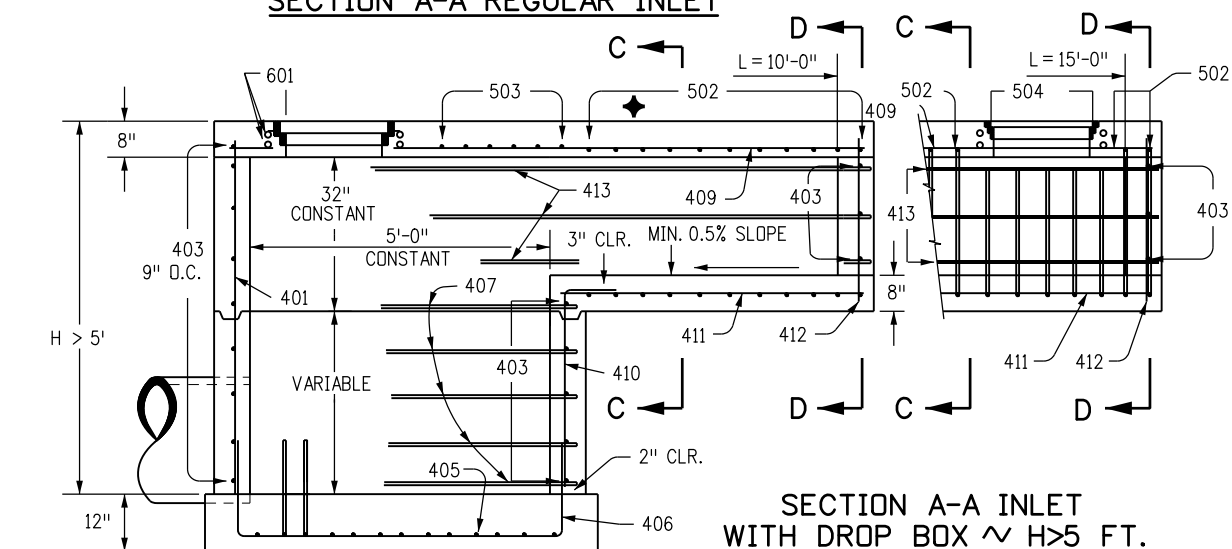
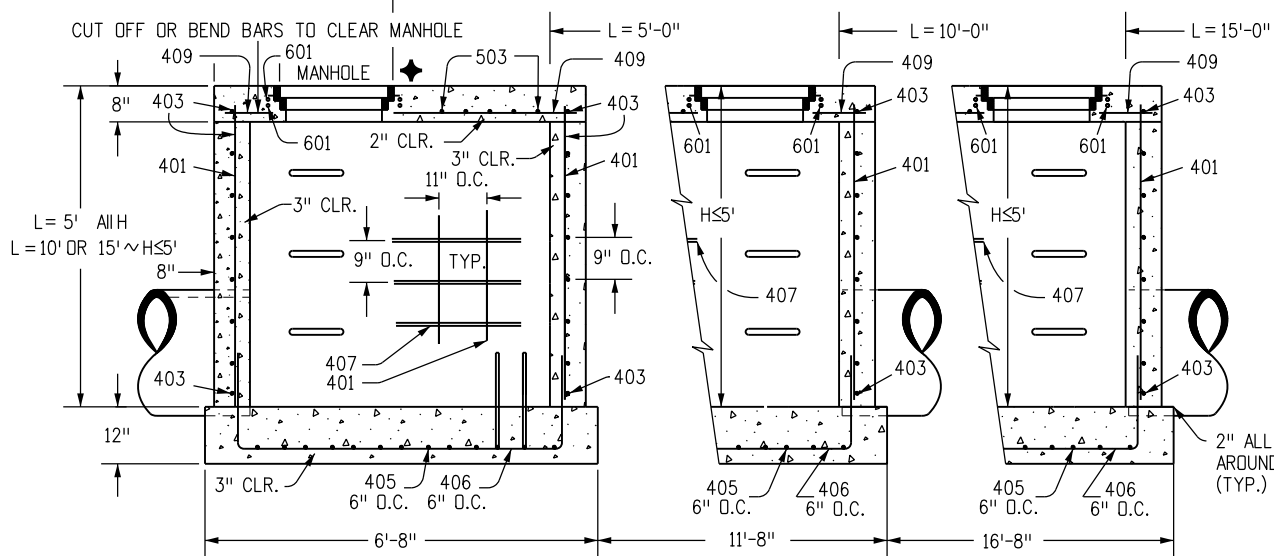
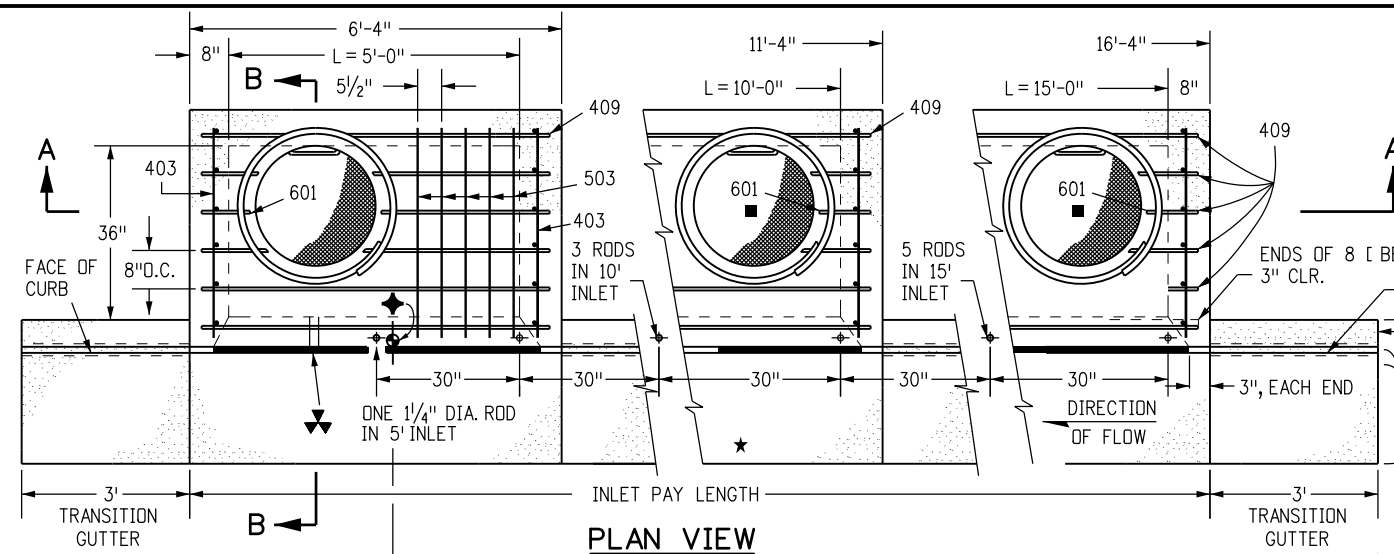
M-603-10

### Standard Sheet No. 1 of 1

Project Sheet Number: M&S 19 of 25

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

Sheet Revisions	
Date:	Comments



★ FOR LENGTH (L) 10 FT. OR MORE, PROVIDE MAINTENANCE ACCESS AT BOTH ENDS WITH AN ADDITIONAL MANHOLE RING AND COVER. CUT REINFORCEMENT BAR ACCORDINGLY.

◆ STATION POINT AT MIDPOINT OF INLET ALONG FLOWLINE

\* WHEN A TYPE R INLET IS USED WITH MOUNTABLE CURB AND GUTTER, 5 FT. TRANSITION SHALL BE CONSTRUCTED. TRANSITION SHALL BE PAID FOR AS CURB AND GUTTER.

▲ - FOR A 1'-0" PAN SLOPE 2" PER FT.

▲ A 2 IN. DIAMETER TEMPORARY HOLE FOR DRAINAGE SHALL BE PLACED AT SUBGRADE ELEVATION OR A MINIMUM THREE INCHES BELOW ROAD BASE. THE HOLE SHALL BE PLUGGED WITH CONCRETE BEFORE ACCEPTANCE OF THE INLET.

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

**GENERAL NOTES:**  
SEE SHEET 2.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		CURB INLET TYPE R		STANDARD PLAN NO.	
Creation Date: 07/31/19		Date:		2829 West Howard Place				M-604-12	
Designer Initials: JBK				CDOT HQ, 3rd Floor				Standard Sheet No. 1 of 2	
Last Modification Date: 07/31/19				Denver, CO 80204					
Detailer Initials: LTA				Phone: 303-757-9021 FAX: 303-757-9868					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English				Project Development Branch		JBK		Issued by the Project Development Branch: July 31, 2019	
								Project Sheet Number: M&S 20 of 25	

MARK	BAR # OR SIZE	O.C. SPACING	TYPE	ALL INLETS		INLETS: H ≤ 5 FT.				INLETS: H > 5 FT.			
				L = 5 FT.		L = 10 FT.		L = 15 FT.		L = 10 FT.		L = 15 FT.	
				NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH
401	4	11"	II	15	*	21	*	26	*	11	*	11	*
402	4	11"	II	7	*	13	*	18	*	7	*	7	*
403	4	9"	II	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"
405	4	6"	VI	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10"
406	4	6"	VIII	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
407	4	9"	II	*	5'-10"	*	10'-10"	*	15'-10"	*	5'-10"	*	5'-10"
408	4	12"	II	3	6'-10"	3	11'-10"	3	16'-0"	3	11'-10"	3	16'-0"
409	4	8"	II	6	5'-10"	6	10'-10"	6	15'-10"	6	10'-10"	6	15'-10"
410	4	11"	VII							3		3	*
411	4	11"	II							3	5'-2"	3	10'-2"
412	4	11"	II							3	2'-9"	3	2'-9"
413	4	9"	II							7	10'-10"	7	15'-10"
501	5	5½"	IV	11	3'-4"	22	3'-4"	33	3'-4"	22	3'-4"	33	3'-4"
502	5	5½"	III							11	11'-5"	17	11'-5"
503	5	5½"	II	5	3'-6"	16	3'-6"	27	3'-6"	6	3'-6"	6	3'-6"
504	5	5½"	IX									5	8'-4"
601	6	2½"	V	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"	4	8'-10"
■ 8C8.5				1	5'-10"	1	10'-10"	1	15'-10"	1	10'-10"	1	15'-10"
				2 BARS, 1 RODS		4 BARS, 3 RODS		8 BARS, 5 RODS		4 BARS, 3 RODS		8 BARS, 5 RODS	

\* VARIABLE REFER TO TABLE TWO.

■ INCLUDE #4, 18 IN. BARS (SEE CHANNEL LAYOUT).

REGULAR INLETS

DROP BOX INLETS

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

"H"	LENGTH			NO. REQ'D.		NO. REQ'D.		L = 5 FT.		L = 10 FT.		L = 15 FT.	
	401	402	410	REGULAR		DROP BOX		CONC. CU. YDS.	STEEL LBS.	CONC. CU. YDS.	STEEL LBS.	CONC. CU. YDS.	STEEL LBS.
				403	407	403	407						
3'-0"	2'-8"	1'-8"		10	7			3.2	285	5.3	497	7.4	706
3'-6"	3'-2"	2'-2"		10	7			3.4	305	5.7	528	7.9	747
4'-0"	3'-8"	2'-8"		12	9			3.7	326	6.0	559	8.4	786
4'-6"	4'-2"	3'-2"		12	9			3.9	334	6.4	571	8.8	803
5'-0"	4'-8"	3'-8"		14	11			4.1	354	6.7	602	9.3	844
5'-6"	5'-2"	4'-2"	3'-5"	16	13	15	6	4.4	375	6.0	607	7.4	850
6'-0"	5'-8"	4'-8"	3'-11"	16	13	16	6	4.6	382	6.2	616	7.6	860
6'-6"	6'-2"	5'-2"	4'-5"	18	15	18	8	4.8	402	6.4	637	7.8	880
7'-0"	6'-8"	5'-8"	4'-11"	20	17	19	10	5.0	423	6.6	654	8.0	897
7'-6"	7'-2"	6'-2"	5'-5"	20	17	20	10	5.3	430	6.9	664	8.3	907
8'-0"	7'-8"	6'-8"	5'-11"	22	19	22	12	5.5	451	7.1	684	8.5	927
8'-6"	8'-2"	7'-2"	6'-5"	24	21	23	14	5.7	471	7.3	702	8.7	944
9'-0"	8'-8"	7'-8"	6'-11"	24	21	24	14	6.0	479	7.6	711	9.0	954
9'-6"	9'-2"	8'-2"	7'-5"	26	23	26	16	6.2	499	7.8	732	9.2	974
10'-0"	9'-8"	8'-8"	7'-11"	28	25	27	18	6.4	520	8.0	749	9.4	992
10'-6"	10'-2"	9'-2"	8'-5"	28	25	28	18	6.7	527	8.3	759	9.7	1001
11'-0"	10'-8"	9'-8"	8'-11"	30	27	30	20	6.9	547	8.5	779	9.9	1022

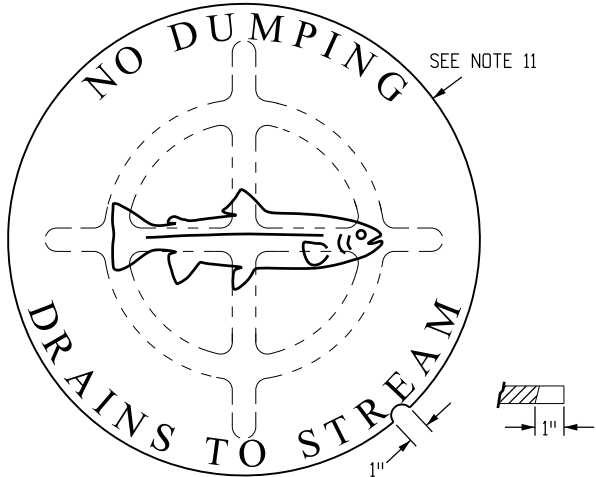
NOTES: FOR L=5 FT., L=10 FT., AND L=15 FT.

REGULAR INLETS: TOTAL QUANTITIES NEEDED ARE OUTSIDE THE HEAVY BLACK LINE.

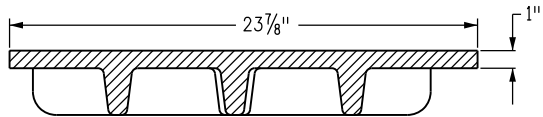
DROP BOX INLETS: TOTAL QUANTITIES NEEDED ARE INSIDE THE HEAVY BLACK LINE.

STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL CHANNEL.

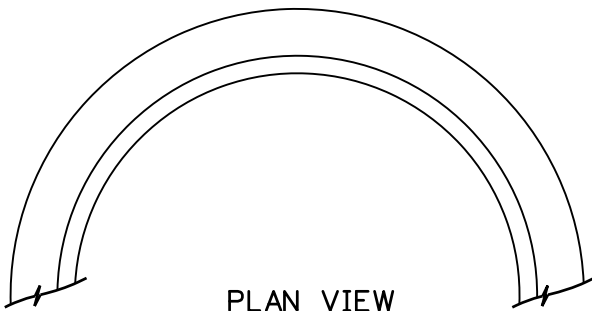
TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"



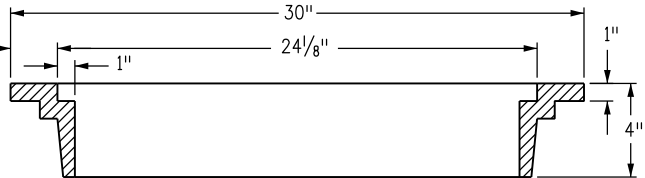
PLAN VIEW



ELEVATION VIEW  
MANHOLE COVER (TYP.)

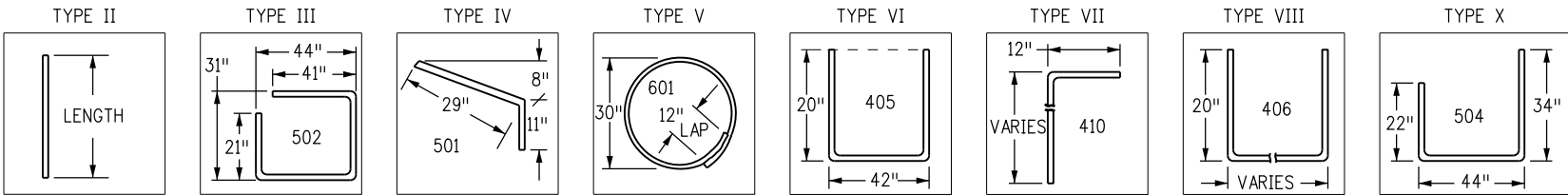


PLAN VIEW



ELEVATION VIEW  
MANHOLE RING (TYP.)

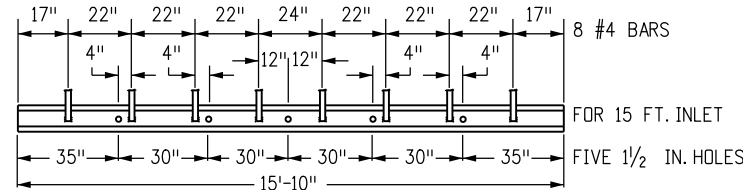
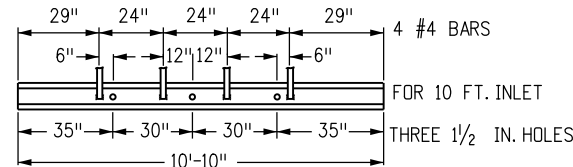
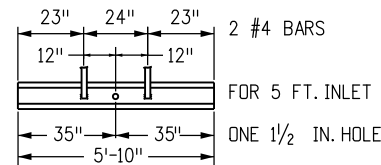
WEIGHTS: COVER = 125 LBS.  
+ RING = 135 LBS.  
TOTAL = 260 LBS.



BAR BENDING DIAGRAMS ~ (DIMENSIONS ARE OUT-TO-OUT OF BAR)

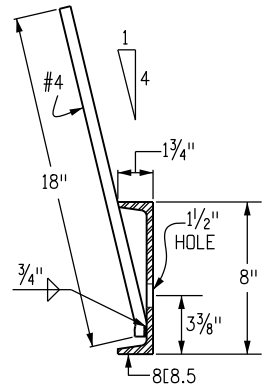
## GENERAL NOTES

- CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
- CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES AND SHALL BE 8 INCHES THICK.
- INLET STEPS SHALL BE IN CONFORMANCE WITH AASHTO M 199.
- CURB FACE ASSEMBLY SHALL BE GALVANIZED AFTER WELDING.
- EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ OF A INCH. CURB AND GUTTER CORNERS SHALL BE FINISHED TO MATCH THE EXISTING CURB AND GUTTER BEYOND THE TRANSITION GUTTER.
- REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2 INCH MINIMUM CLEARANCE. ALL REINFORCING BARS SHALL BE GRADE 60 AND EPOXY COATED.
- DIMENSIONS AND WEIGHTS OF TYPICAL MANHOLE RING AND COVER ARE NOMINAL.
- MATERIAL FOR MANHOLE RINGS AND COVERS SHALL BE GRAY OR DUCTILE CAST IRON IN ACCORDANCE WITH SUBSECTION 712.06.
- SINCE PIPE ENTRIES INTO THE INLET ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK. QUANTITIES INCLUDE VOLUMES OCCUPIED BY PIPES.
- STRUCTURAL STEEL SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
- ALL MANHOLE COVERS SHALL BE CAST WITH A "NO DUMPING DRAINS TO STREAM" MESSAGE AND A FISH SYMBOL. THE SURFACE OF THE MANHOLE COVER SHALL HAVE A NON-SLIP PATTERN.



## CHANNEL LAYOUT DETAILS

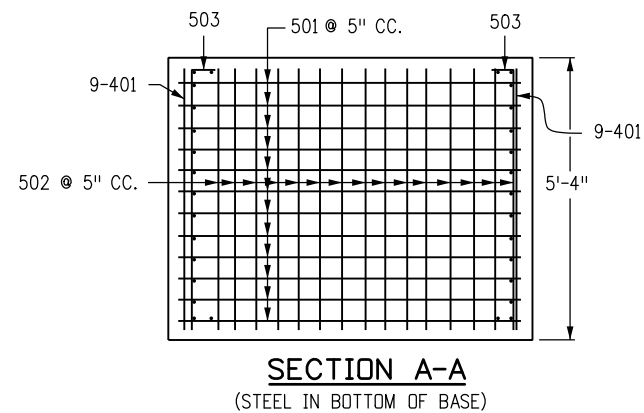
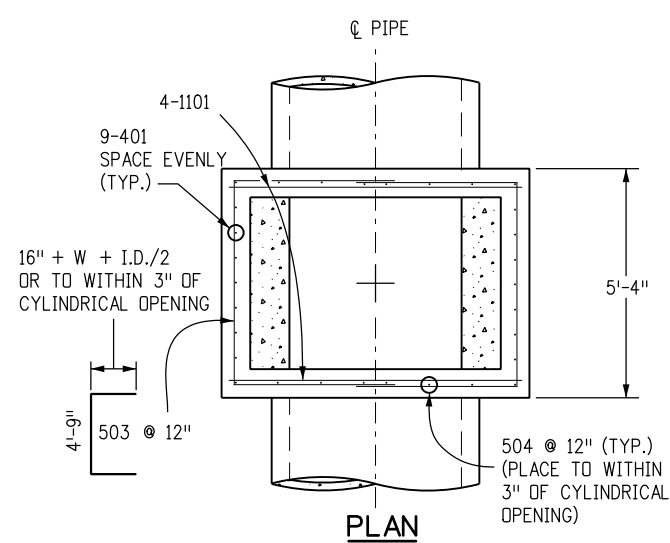
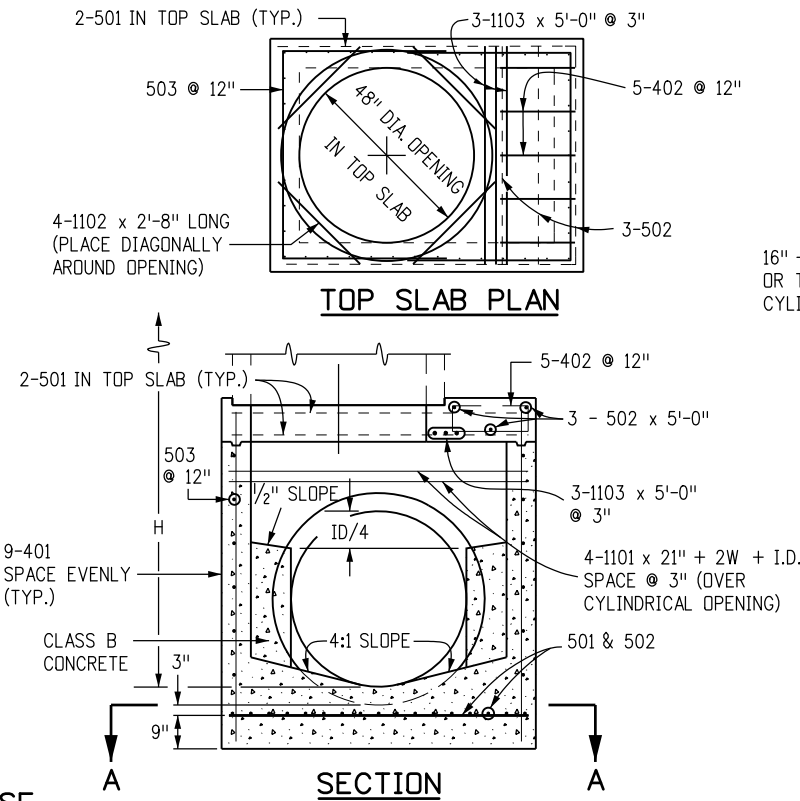
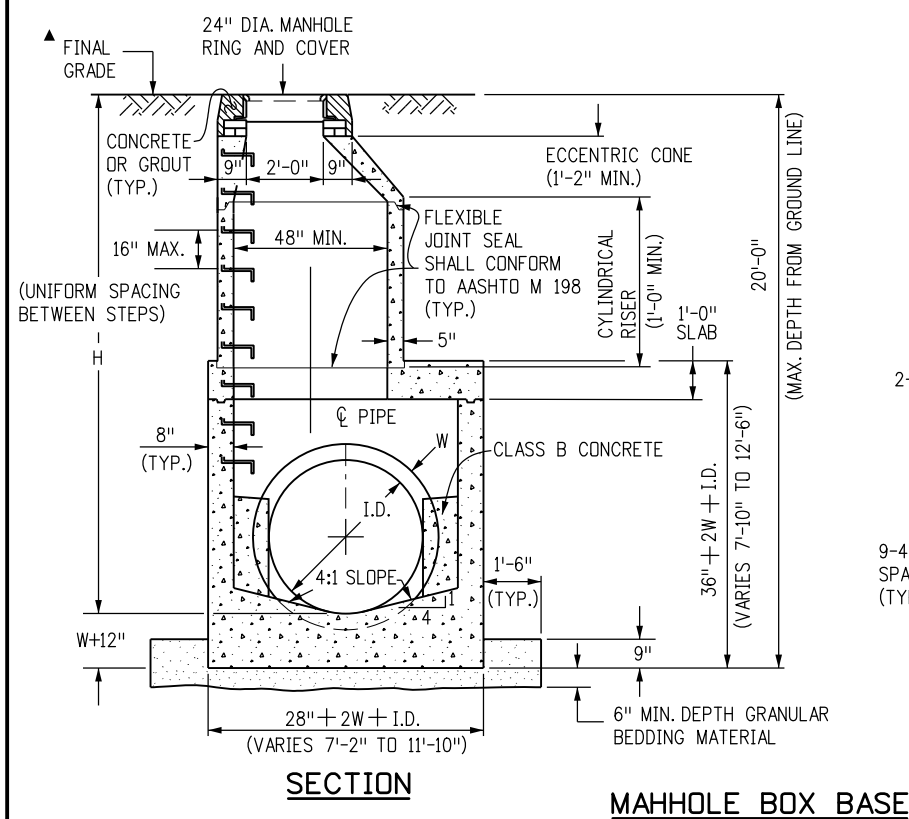
SEE CURB FACE ASSEMBLY ON SHEET 1.



SECTION AT HOLE (TYP.)

Computer File Information			Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	CURB INLET TYPE R	STANDARD PLAN NO.	
Creation Date: 07/31/19	<div>(R-X)</div> <div>(R-X)</div> <div>(R-X)</div> <div>(R-X)</div>	Designer Initials: JBK	Date:	Comments			M-604-12	
Last Modification Date: 07/31/19							Standard Sheet No. 2 of 2	
Detailer Initials: LTA							Project Sheet Number: M&S 21 of 25	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English							Issued by the Project Development Branch: July 31, 2019	

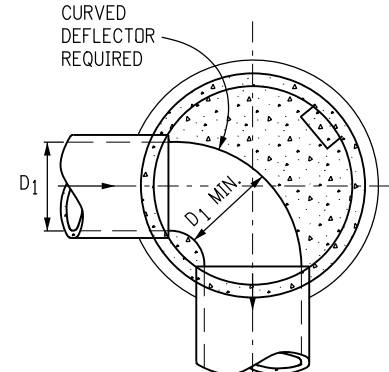
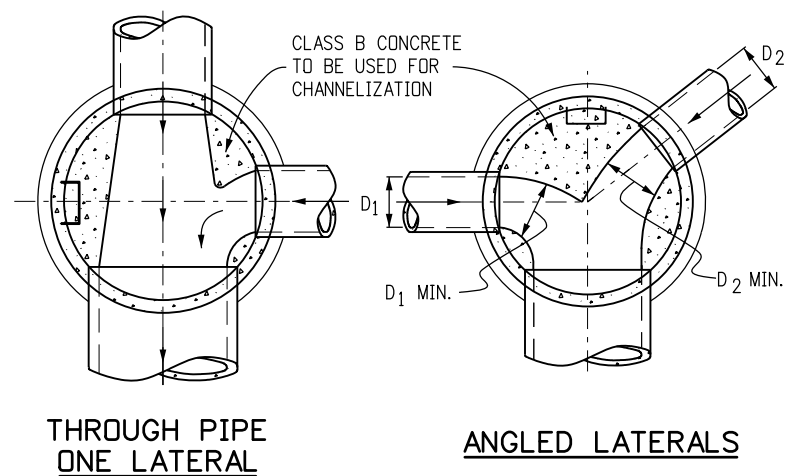




- ### GENERAL NOTES
1. SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
  2. THE PRECAST FLAT TOP MAY BE USED ON ANY MANHOLE. THE ECCENTRIC CONE MAY BE USED WHEN THE MANHOLE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

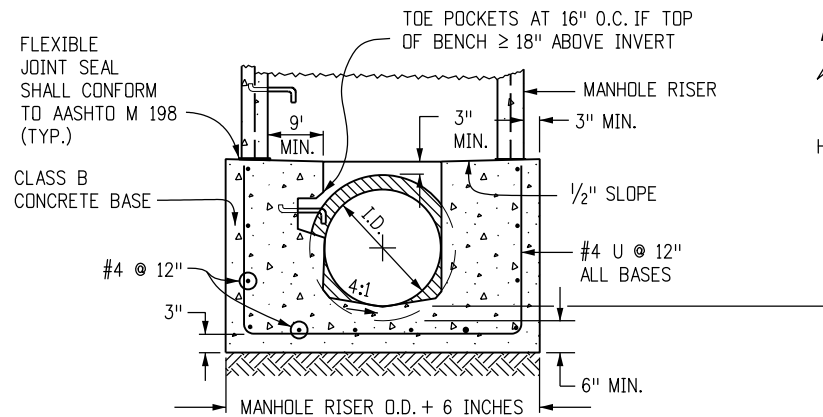
MARK	SIZE	TYPE	WT. #/FT.	BARS	I.D.						FORMULAS
					54"	60"	66"	72"	84"	96"	
401	4	I	0.668	{NO. REQ'D. LENGTH WEIGHT *	18 8'-1" 97.2	18 8'-8" 104.2	18 9'-3" 111.2	18 9'-10" 118.2	18 11'-0" 132.3	18 12'-2" 146.3	401 BAR LENGTH = 32" + 2W + I.D.
402	4	III	0.668	{NO. REQ'D. LENGTH WEIGHT *	5 5'-5" 18.1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

### QUANTITIES FOR CONCRETE MANHOLE BOX BASE

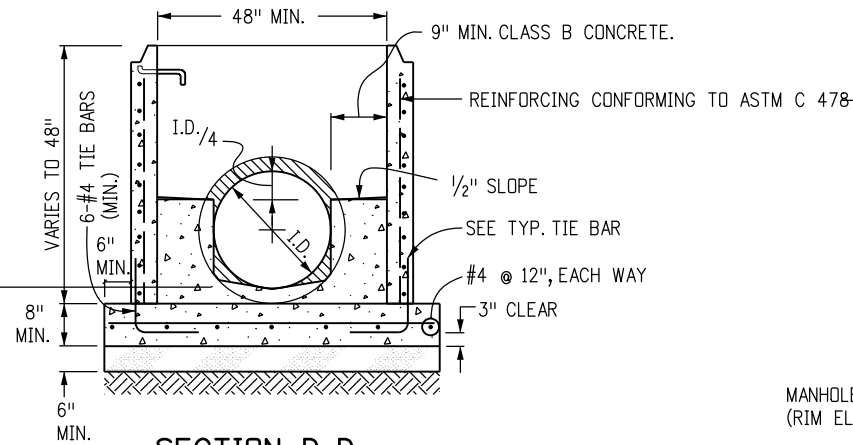


### TYPICAL CHANNELIZATION DETAILS

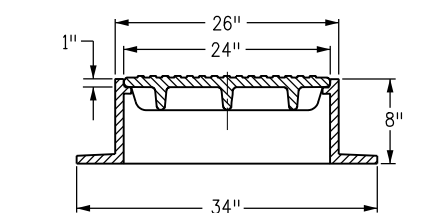
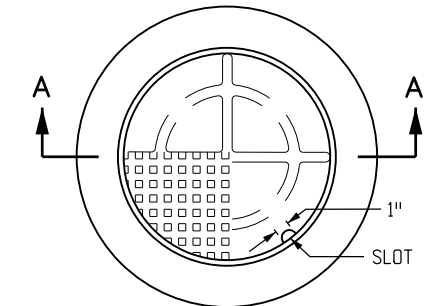
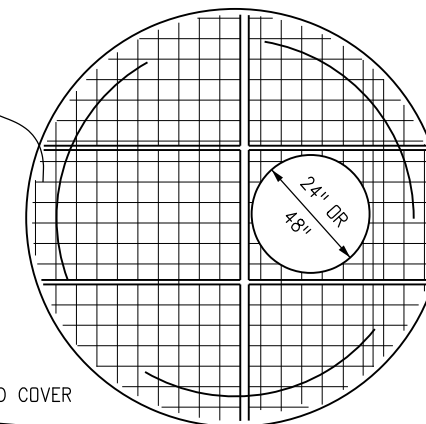
Computer File Information			Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	MANHOLES	STANDARD PLAN NO.	
Creation Date: 07/31/19			Date:	Comments			M-604-20	
Designer Initials: JBK	(R-X)						Standard Sheet No. 1 of 3	
Last Modification Date: 07/31/19	(R-X)							
Detailer Initials: LTA	(R-X)							
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)						Issued by the Project Development Branch: July 31, 2019	
							Project Sheet Number: M&S 22 of 25	



SECTION B-B

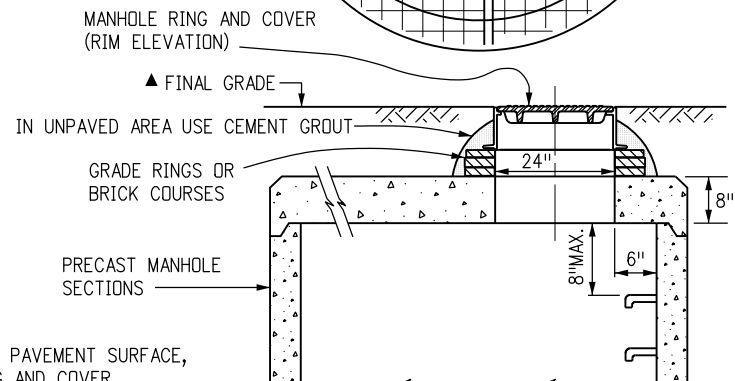


SECTION D-D



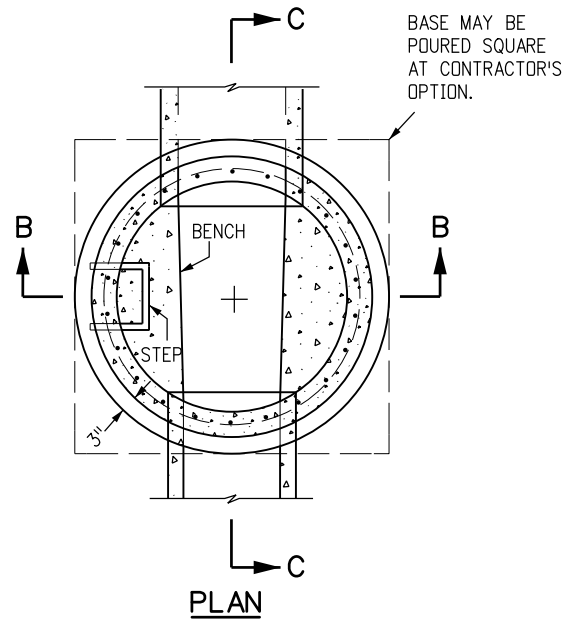
TOTAL WEIGHT: APPROXIMATELY 400 LBS.  
SHALL BE GRAY OR DUCTILE CAST  
IRON IN ACCORDANCE WITH  
SUBSECTION 712.06.

SECTION A-A  
MANHOLE RING AND COVER

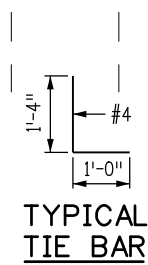


FLAT TOP SECTION DETAIL

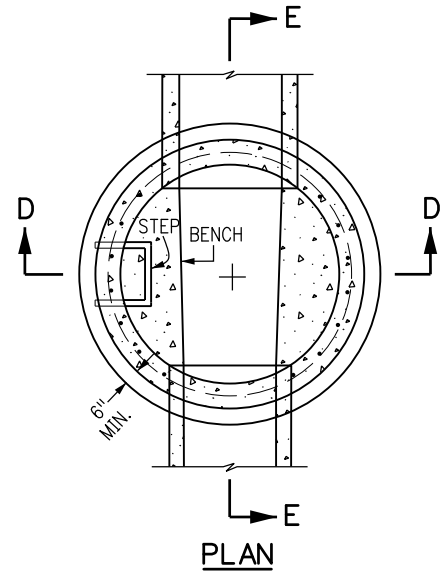
▲ WHEN FINAL GRADE IS PAVEMENT SURFACE,  
RECESS MANHOLE RING AND COVER  
1/4" MIN. TO 1/2" MAX.



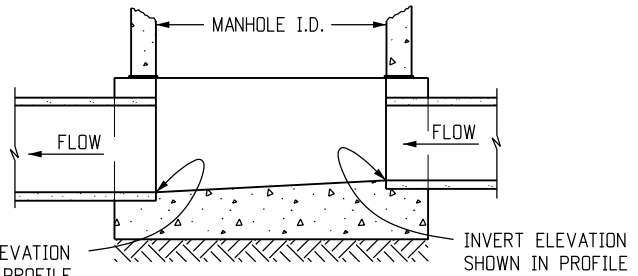
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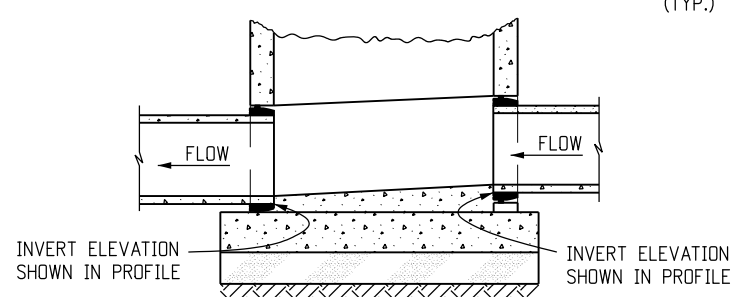
TYPICAL  
TIE BAR



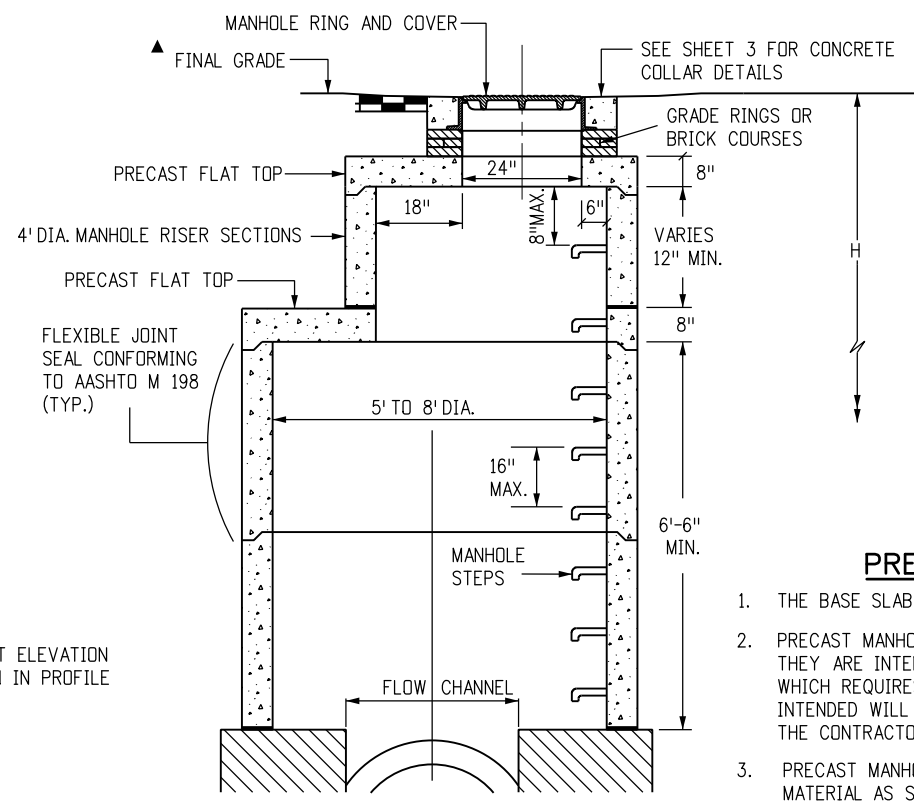
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SECTION C-C  
CAST-IN-PLACE SLAB BASE

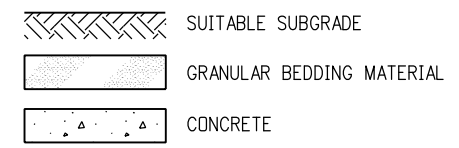


SECTION E-E  
PRECAST SLAB BASE



MANHOLE RISER DETAIL

LEGEND



PRECAST MANHOLE BASES NOTES:

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

Computer File Information

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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Colorado Department of Transportation

2829 West Howard Place  
CDOT HQ, 3rd Floor  
Denver, CO 80204  
Phone: 303-757-9021 FAX: 303-757-9868  
Project Development Branch JBK

MANHOLES

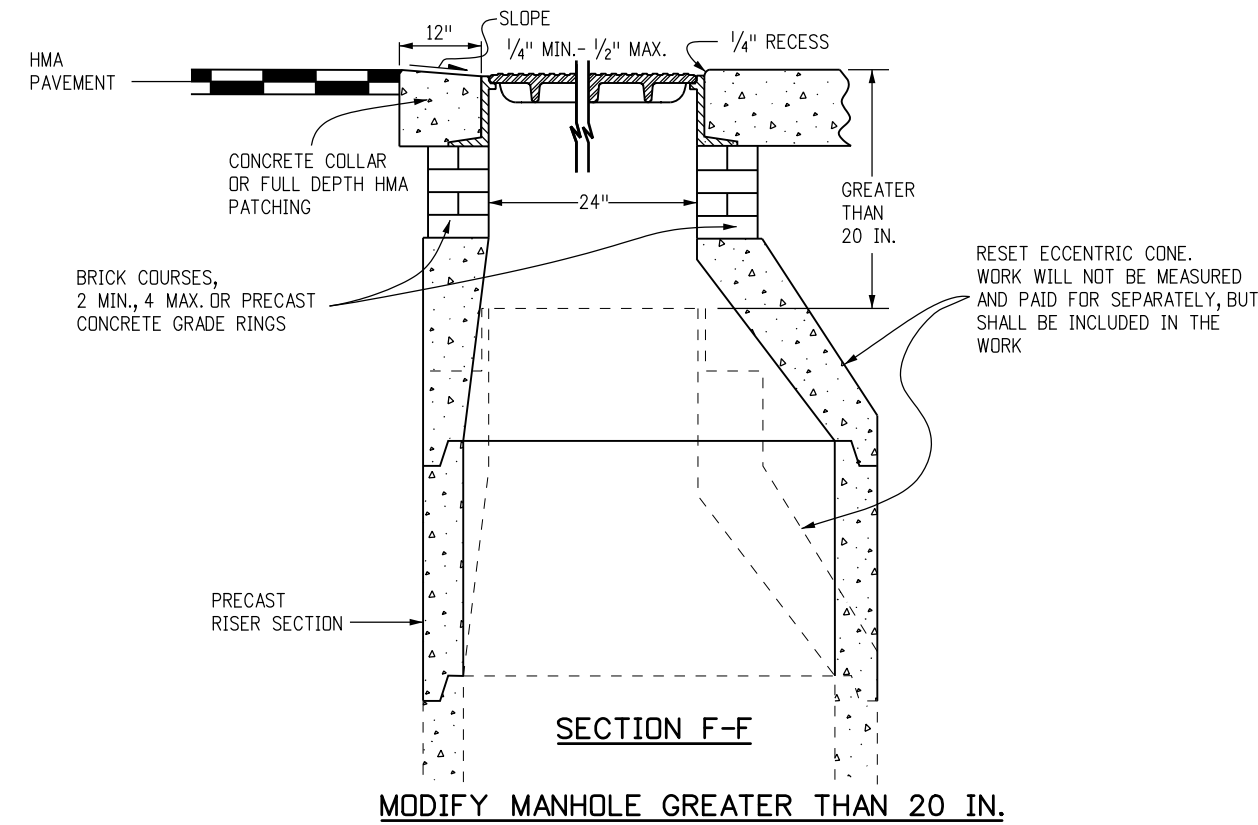
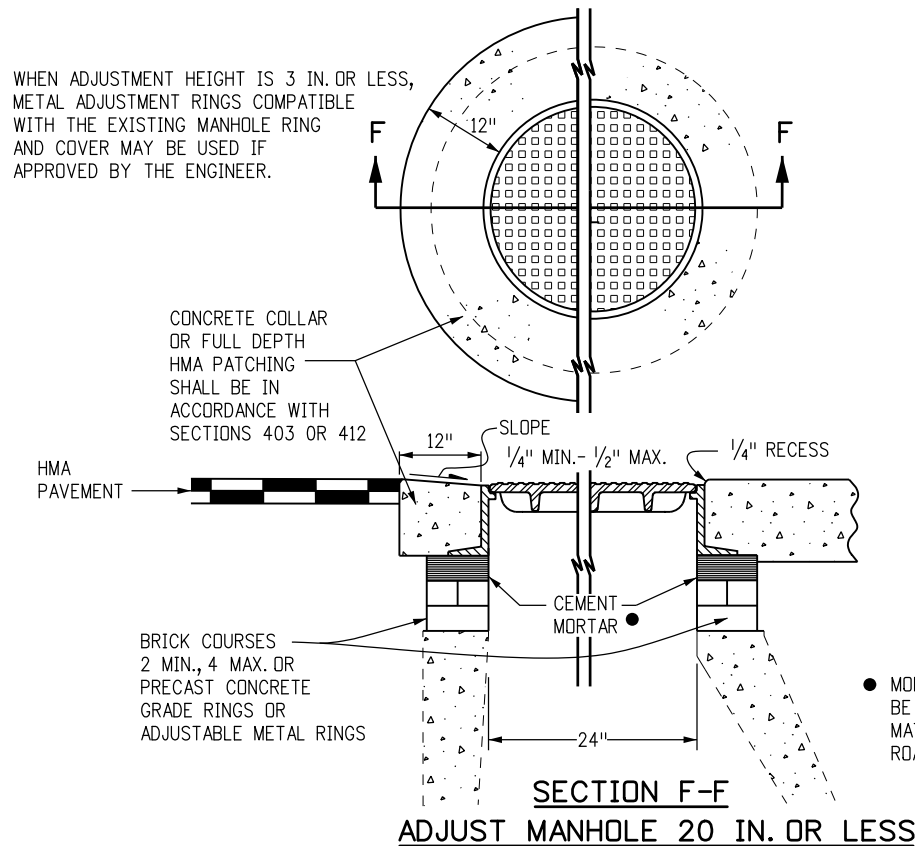
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STANDARD PLAN NO.

M-604-20

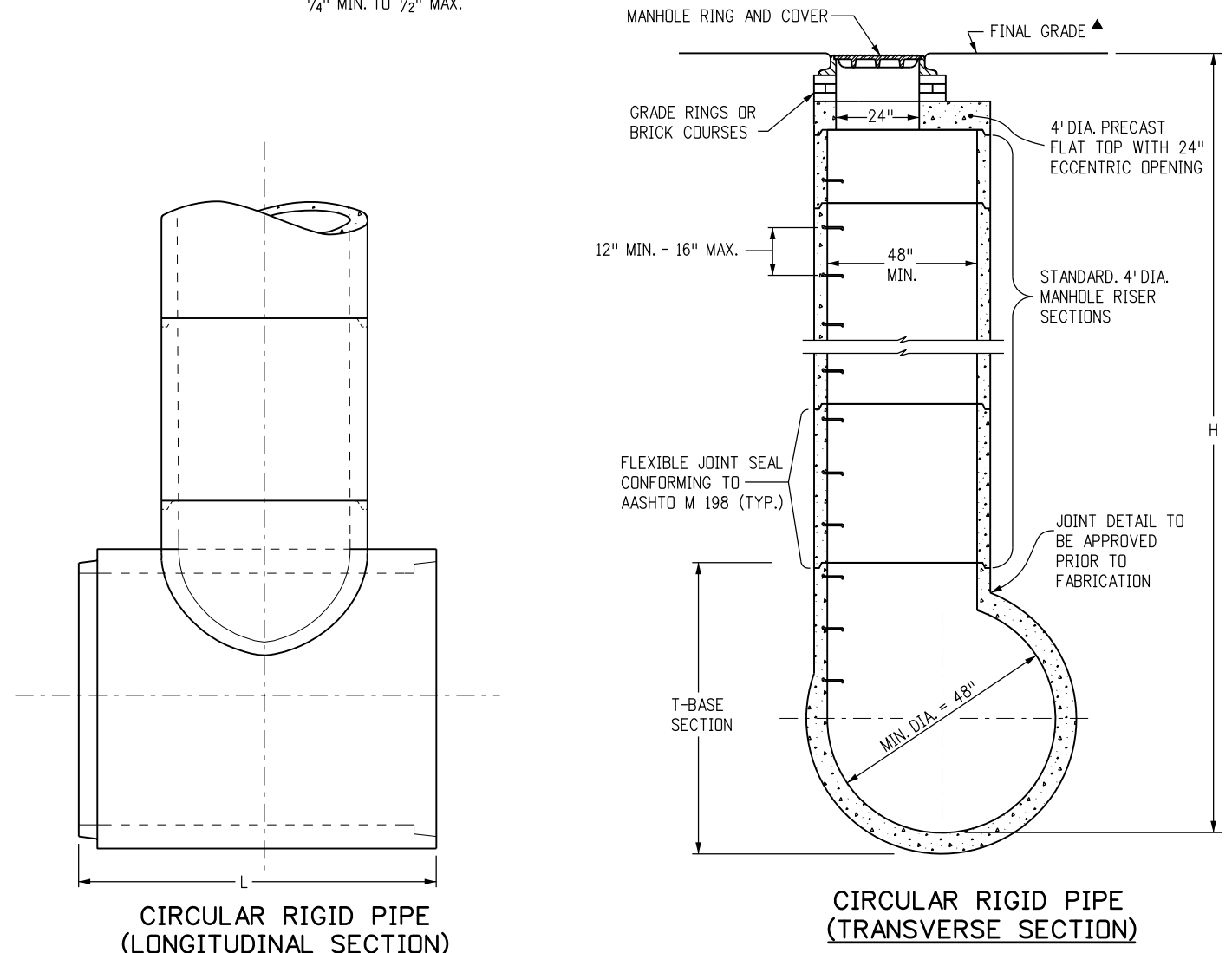
Standard Sheet No. 2 of 3

Project Sheet Number: M&S 23 of 25



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

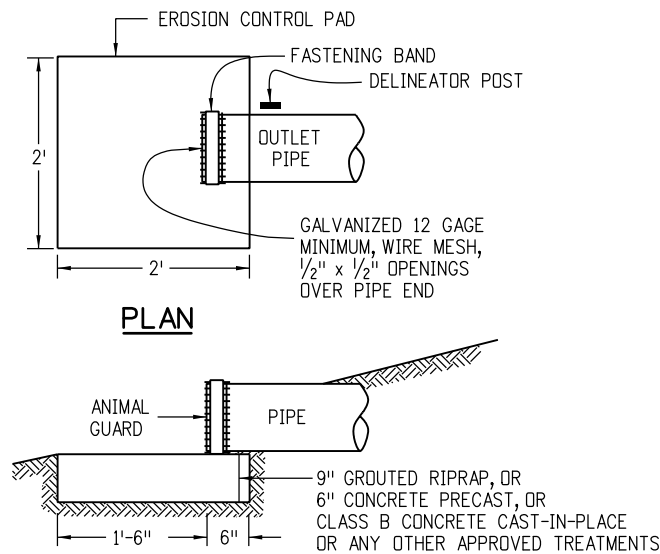
▲ WHEN FINAL GRADE IS PAVEMENT SURFACE, RECESS MANHOLE RING AND COVER 1/4" MIN. TO 1/2" MAX.



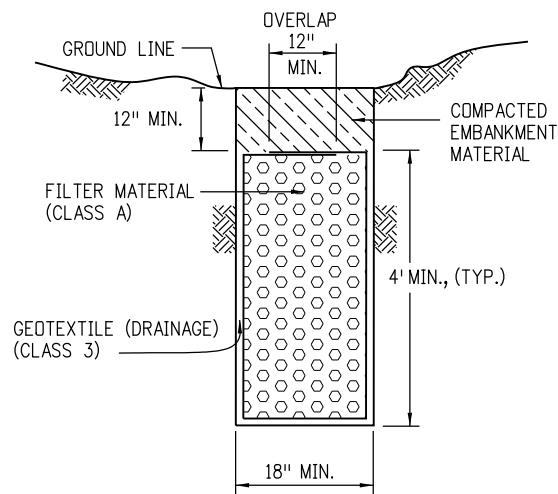
MANHOLE T-BASE

Computer File Information		Sheet Revisions		<div> <div>Colorado Department of Transportation</div> <div> </div> <div>           2829 West Howard Place            CDOT HQ, 3rd Floor            Denver, CO 80204            Phone: 303-757-9021 FAX: 303-757-9868         </div> </div>	MANHOLES	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments			M-604-20	
Designer Initials: JBK	(R-X)					Standard Sheet No. 3 of 3	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number: M&S 24 of 25	
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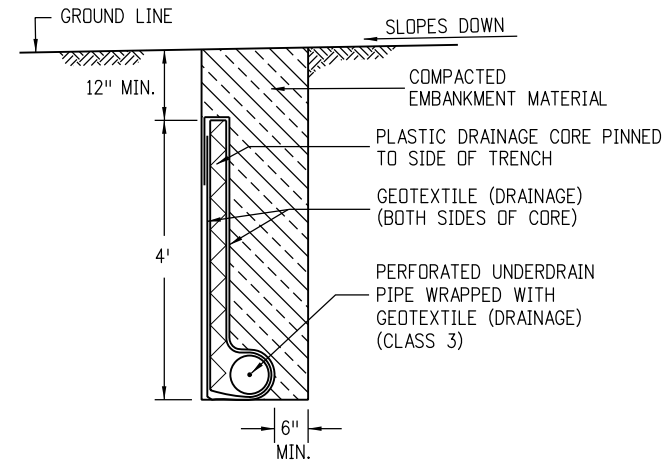




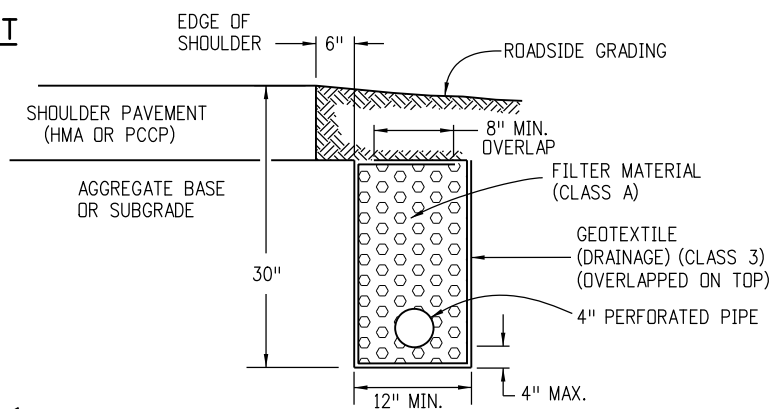
**OUTLET PIPE  
END TREATMENT**



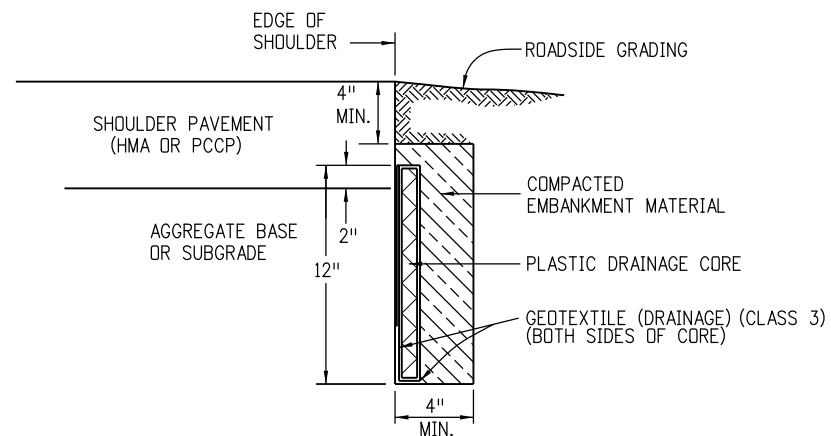
**FRENCH DRAIN**



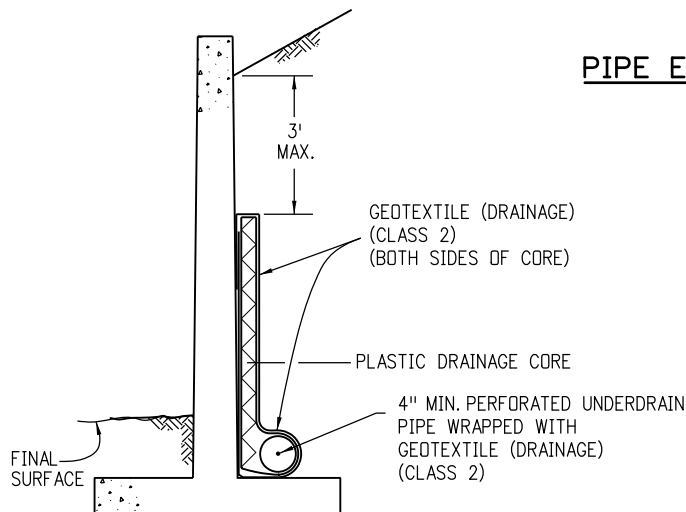
**GEOCOMPOSITE  
UNDERDRAIN**



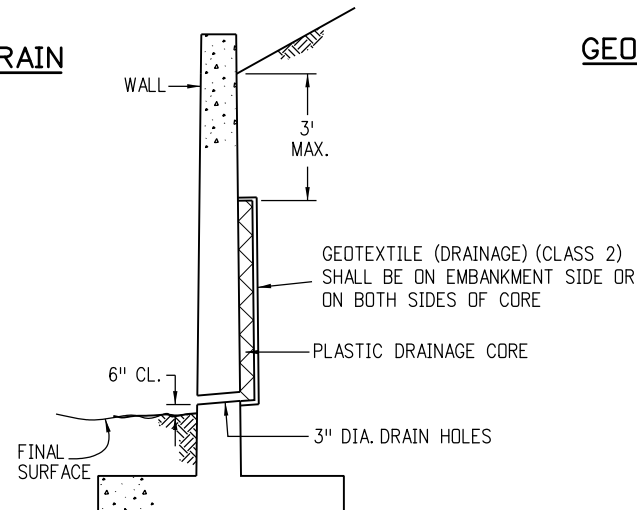
**PIPE EDGE DRAIN**



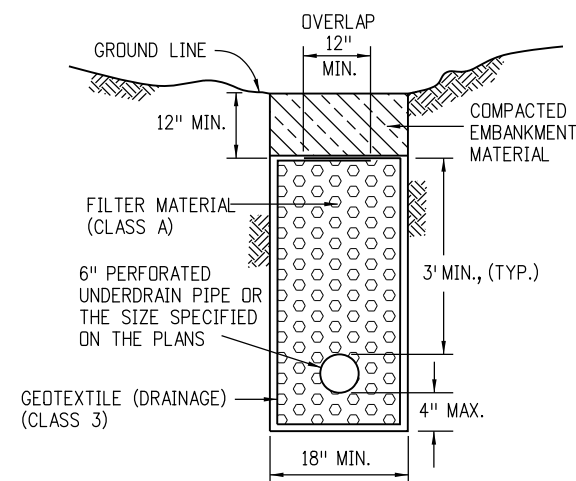
**GEOCOMPOSITE EDGE DRAIN**



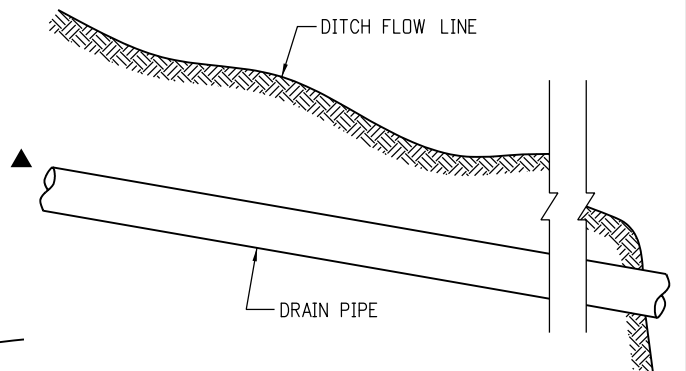
**GEOCOMPOSITE  
DRAIN WITH PIPE**



**GEOCOMPOSITE  
DRAIN WITHOUT PIPE**



**PIPE UNDERDRAIN**



**UNDERDRAIN PIPE**

FLOWLINE OF PIPE SHALL FOLLOW ESTABLISHED GRADE AND NOT NATURAL SLOPE OF GROUND LINE.

THE SLOPE OF PERFORATED UNDERDRAIN PIPES AND NON-PERFORATED UNDERDRAIN PIPES SHALL BE UNIFORM.

**GENERAL NOTES**

1. THE LOCATION AND GRADE OF SUBSURFACE DRAINS AND OUTLET PIPES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. OUTLETS FOR THE EDGE DRAINS ARE TO BE SPACED AT MAXIMUM 600 FT. INTERVALS OR AS SHOWN ON THE PLANS. GEOCOMPOSITE OUTLET CONNECTIONS SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS.
3. WHERE THE UNDERDRAIN PIPE OUTLETS ONTO A SLOPE OR DITCH, THE OUTLET PIPE END SHALL BE MARKED WITH A DELINEATOR POST, AND HAVE AN ANIMAL GUARD AND AN EROSION CONTROL PAD.
4. THE GEOCOMPOSITE SHALL BE SECURED TO THE WALL OR TO THE TRENCH SIDE TO PREVENT MOVEMENT DURING BACKFILLING.
5. DRAIN HOLES IN RETAINING WALL SHALL BE SPACED AT 10 FT. INTERVALS OR AS SHOWN ON THE PLANS.
6. STRUCTURE EXCAVATION AND BACKFILL LIMITS FOR RETAINING WALLS ARE SHOWN ON STANDARD PLAN M-206-1. ALL EXTRA EXCAVATION AND BACKFILL WORK NECESSARY TO COMPLETE RETAINING WALL, AGGREGATE, AND GEOCOMPOSITE DRAINS IS INCLUDED IN THE DRAIN WORK.
7. FILTER MATERIAL SHALL BE TAMPED WITH A LIGHT VIBRATORY TAMPER PRIOR TO OVERLAPPING THE GEOTEXTILE FABRIC.
8. THE EDGE DRAIN TRENCH SHALL BE CONSTRUCTED AFTER PLACEMENT OF THE AGGREGATE BASE AND SUBBASE.

**Computer File Information**

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Last Modification Date: 07/31/19  
Detailer Initials: LTA  
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

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**Colorado Department of Transportation**



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CDOT HQ, 3rd Floor  
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Phone: 303-757-9021 FAX: 303-757-9868

**Project Development Branch**

**JBK**

**SUBSURFACE  
DRAINS**

Issued by the Project Development Branch: July 31, 2019

**STANDARD PLAN NO.**

**M-605-1**

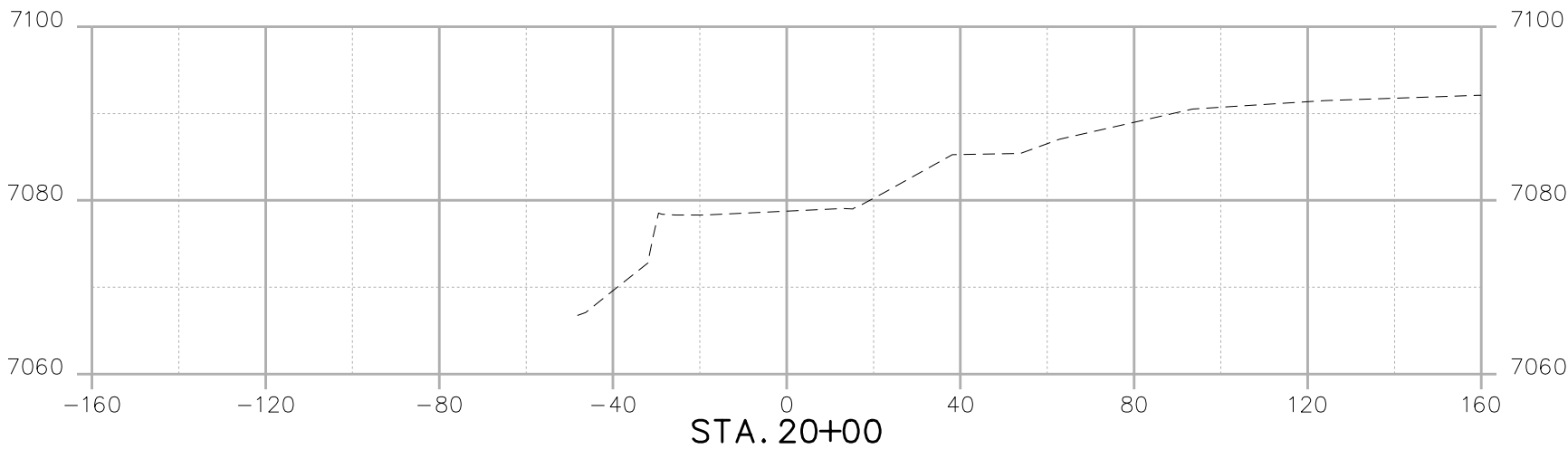
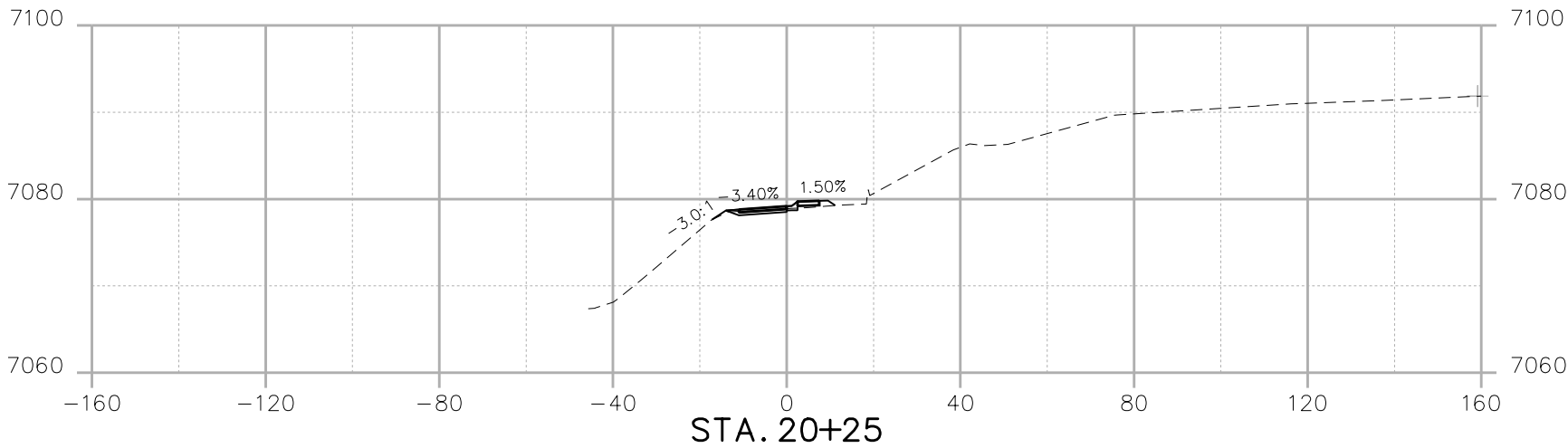
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Project Sheet Number: M&S 25 of 25

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LEGEND

- HWY 105 PROJECT (BY OTHERS)
- MONUMENT ACADEMY  
RECIRCULATION PLAN TIE-IN



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Detailer:	J. WILKERT	Numbers	
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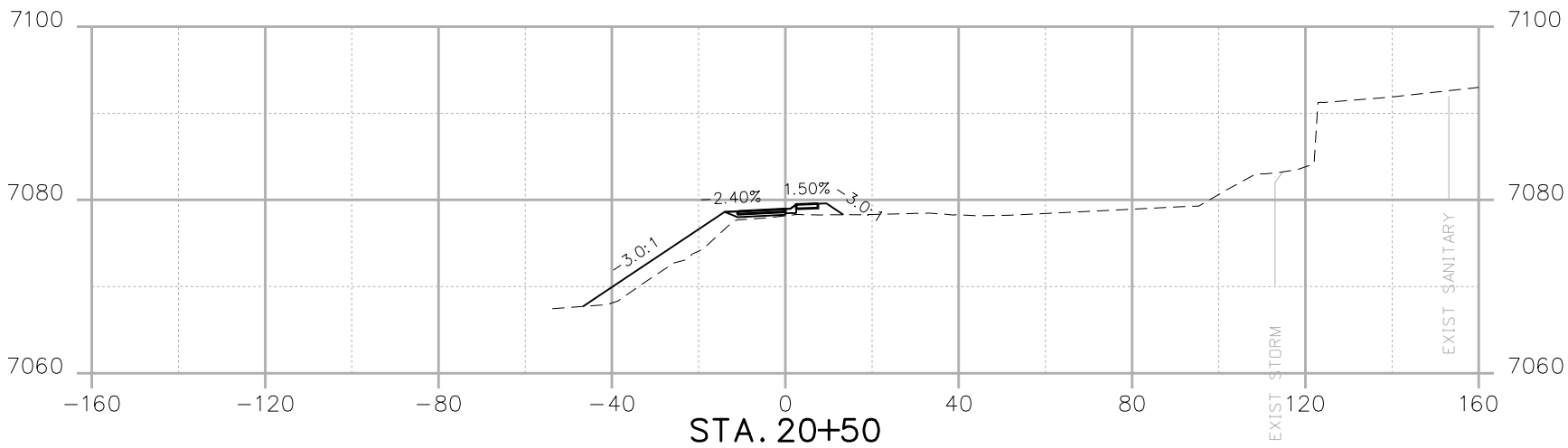
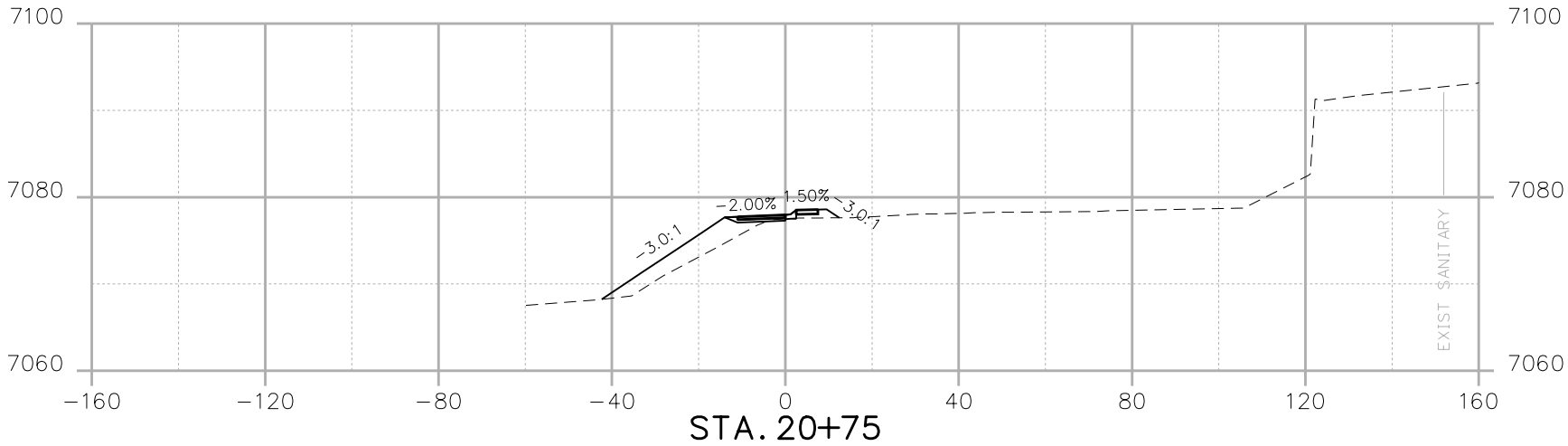
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Detailer: J. WILKERT

Structure  
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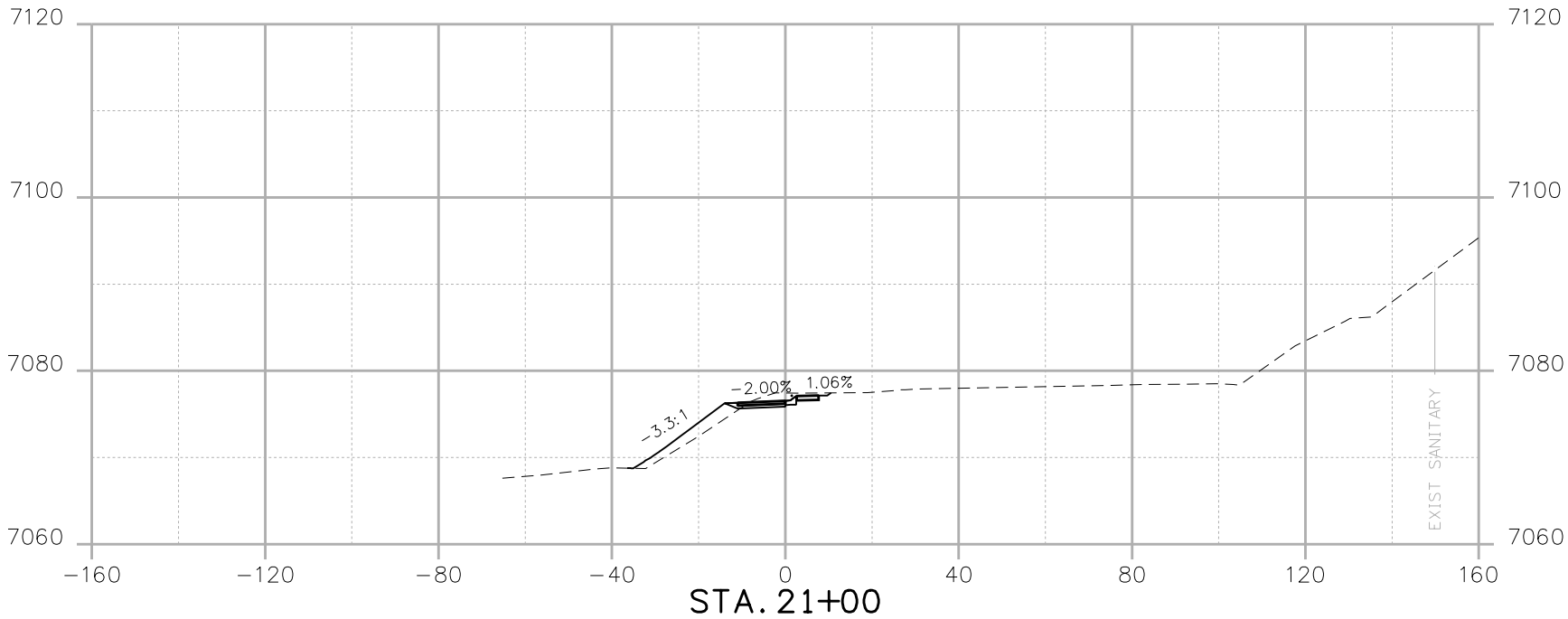
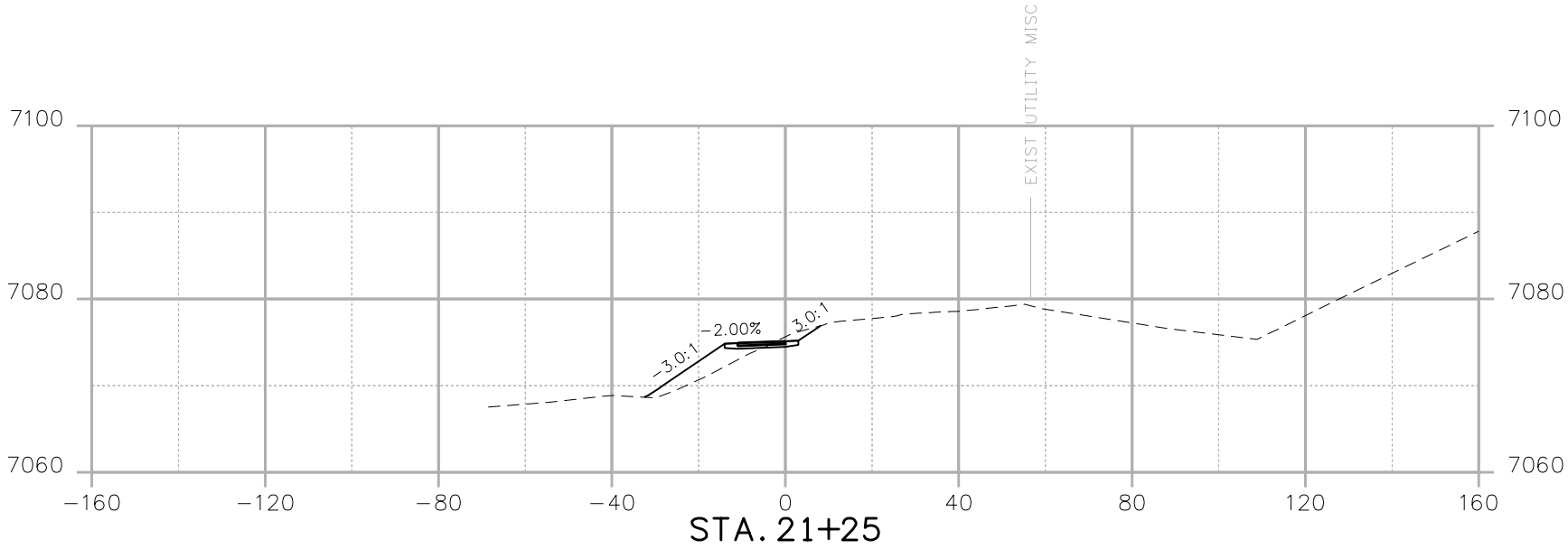
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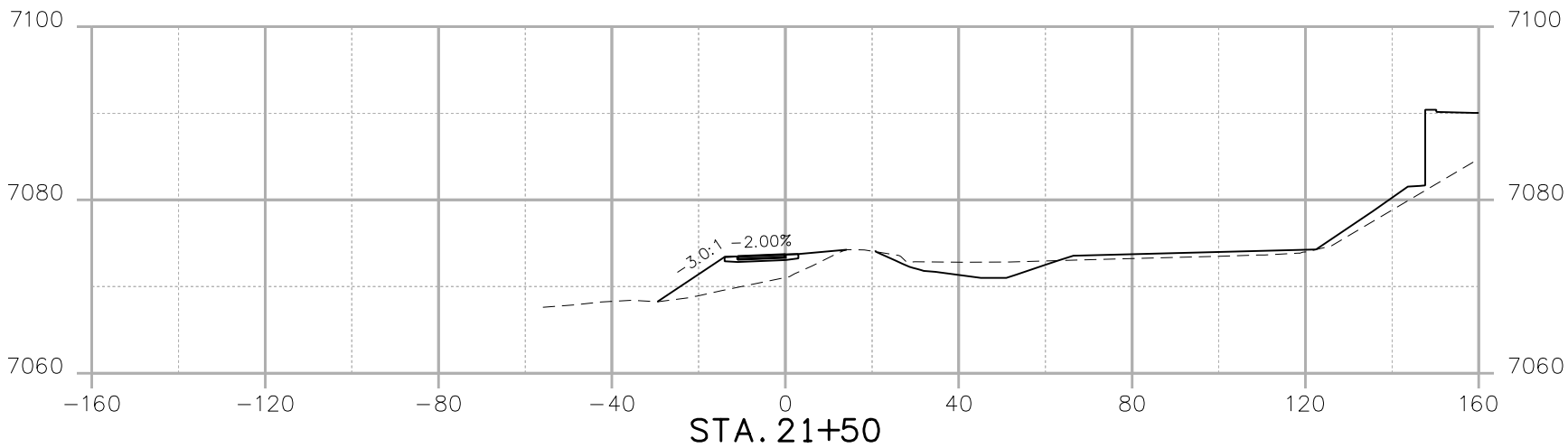
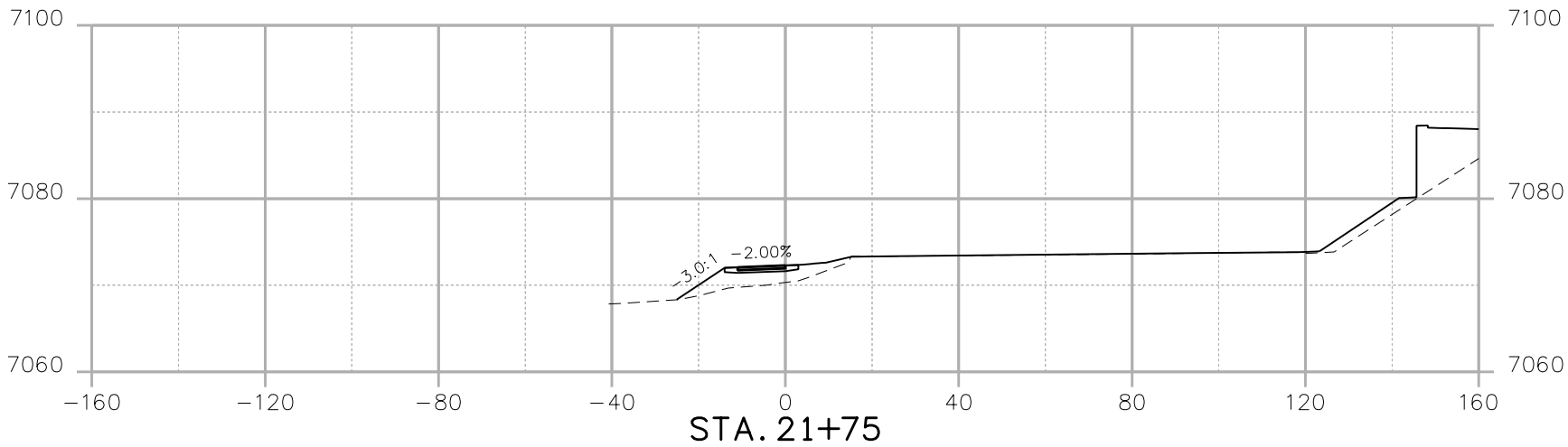


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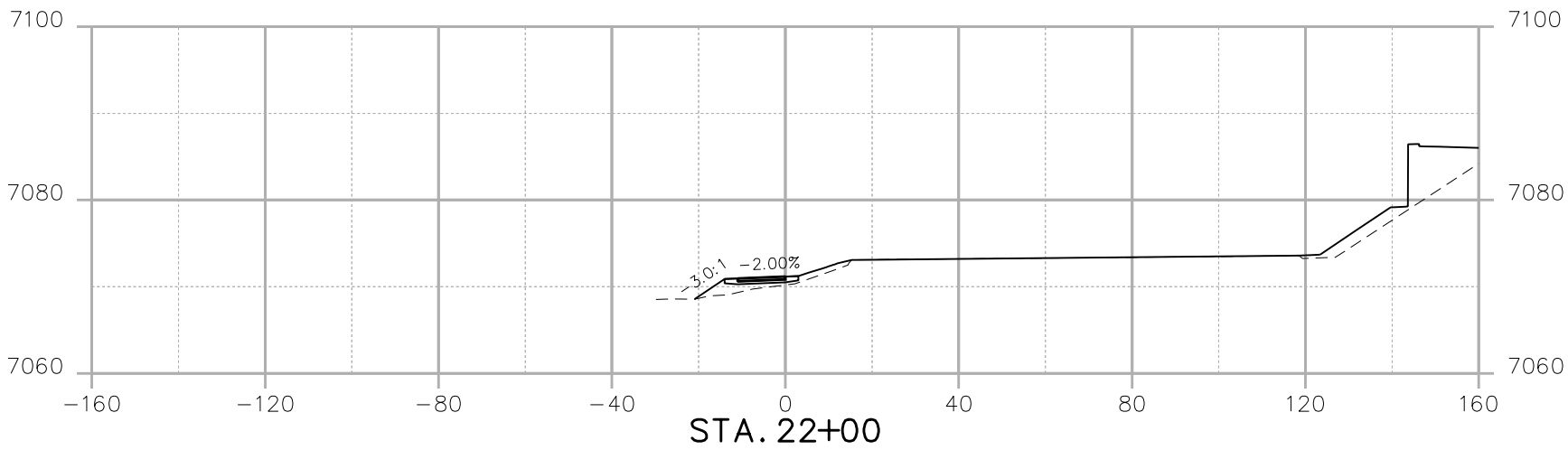
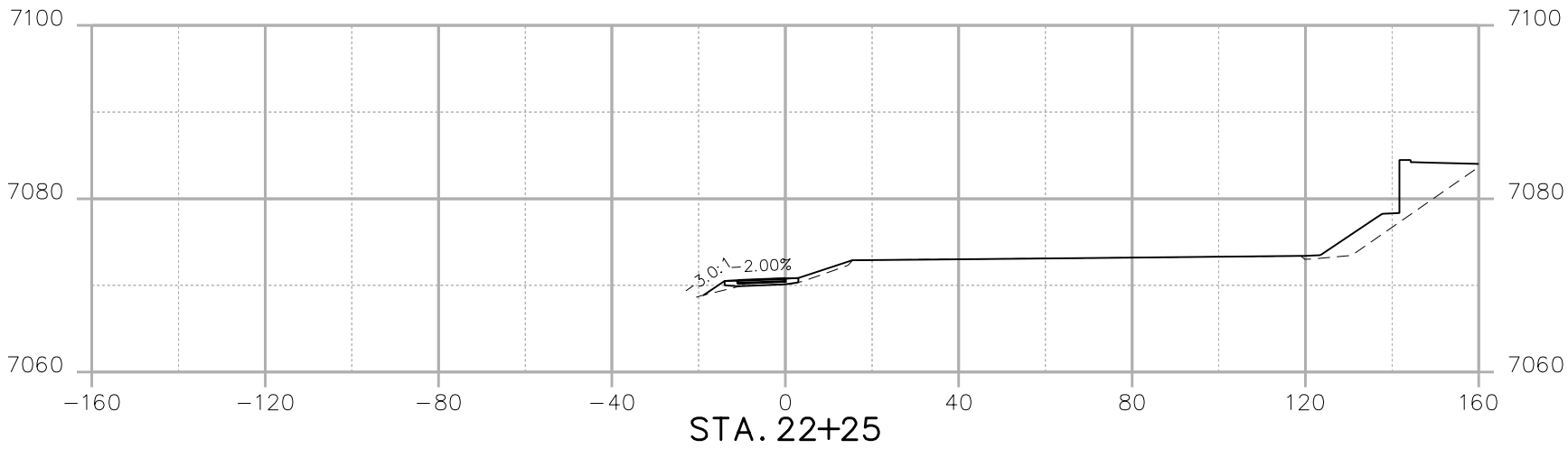


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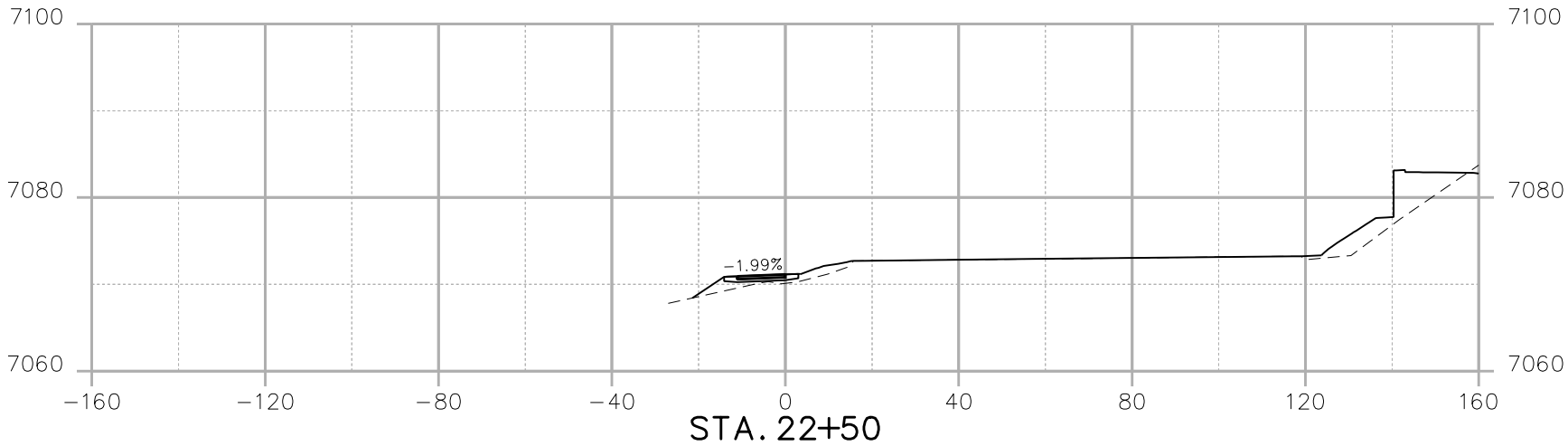
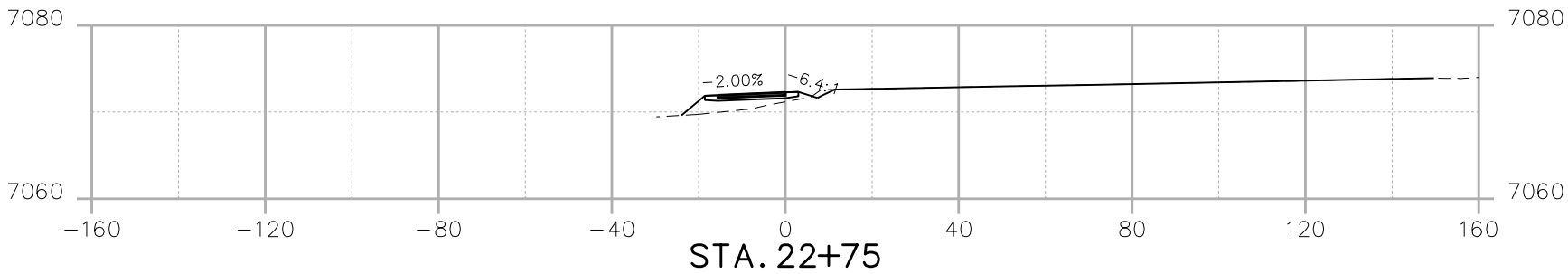
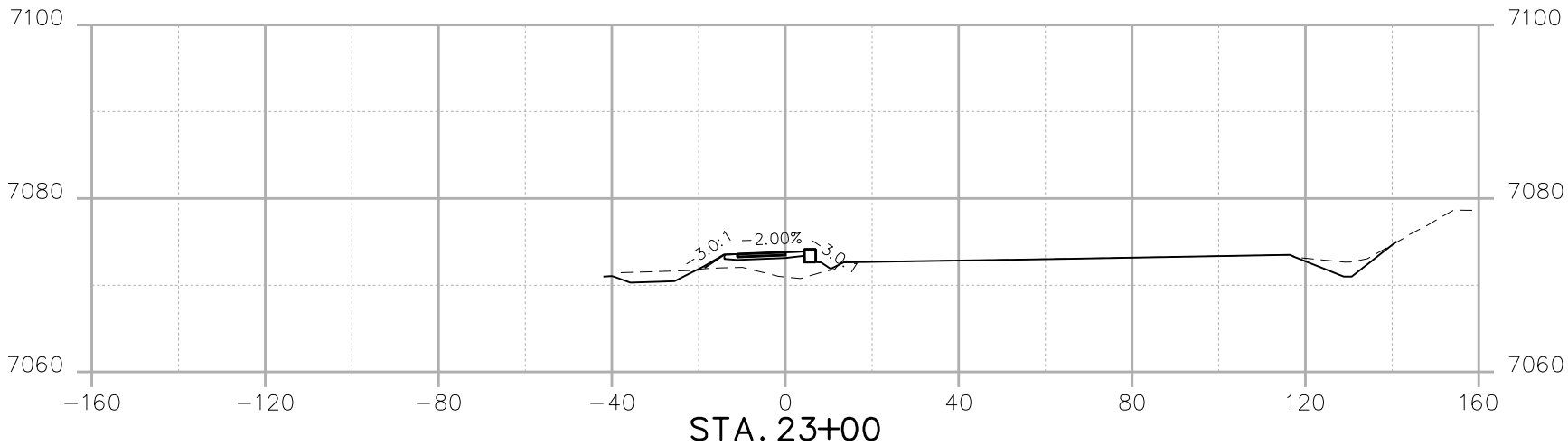


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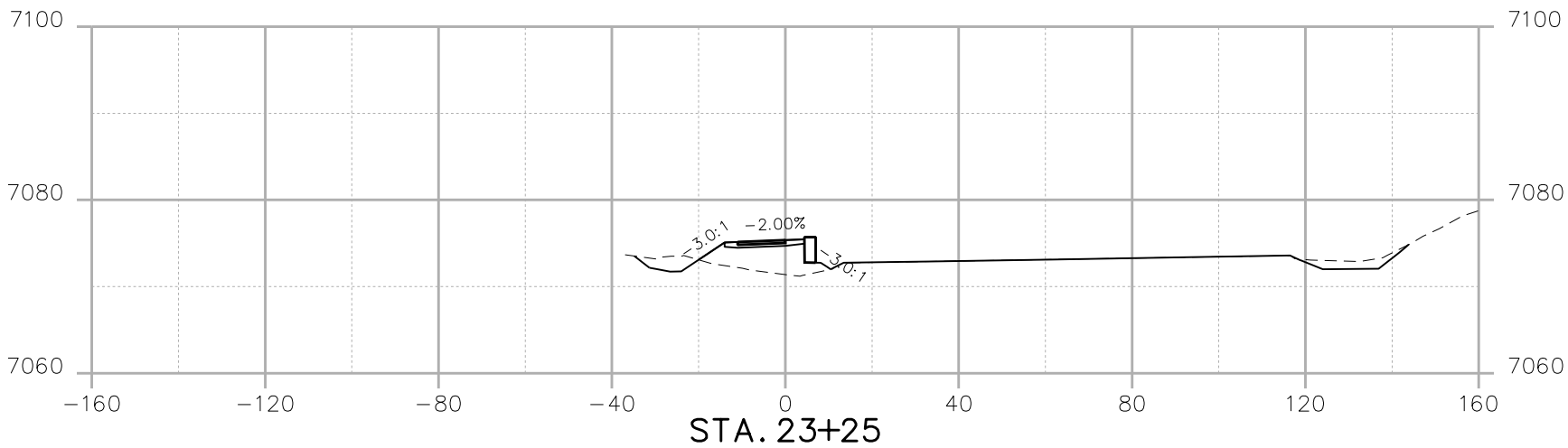
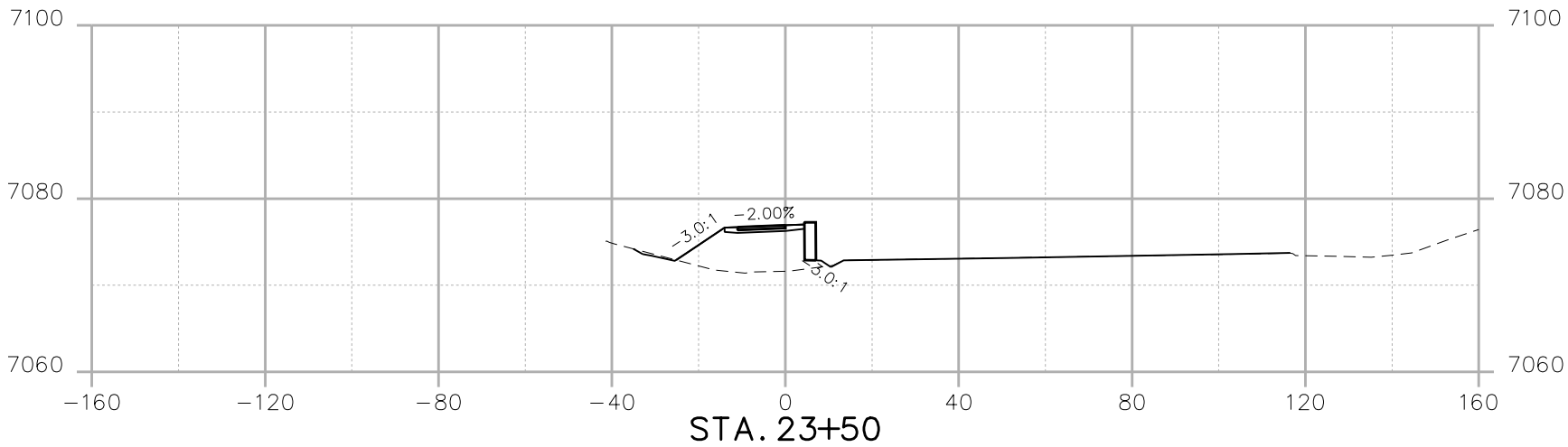
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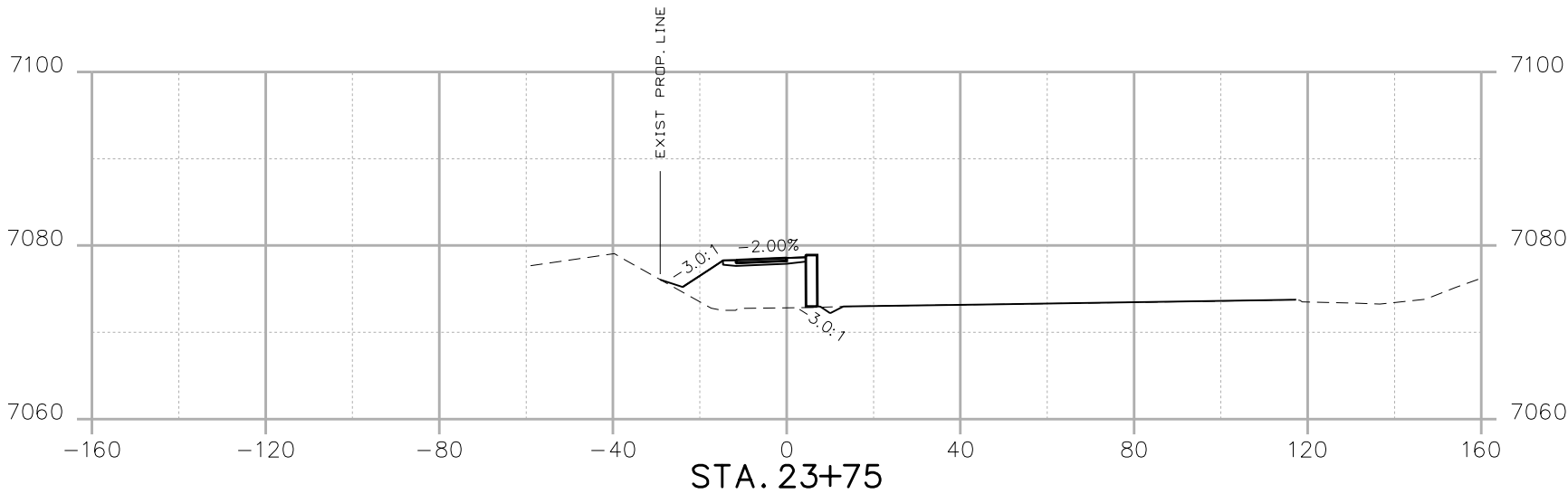
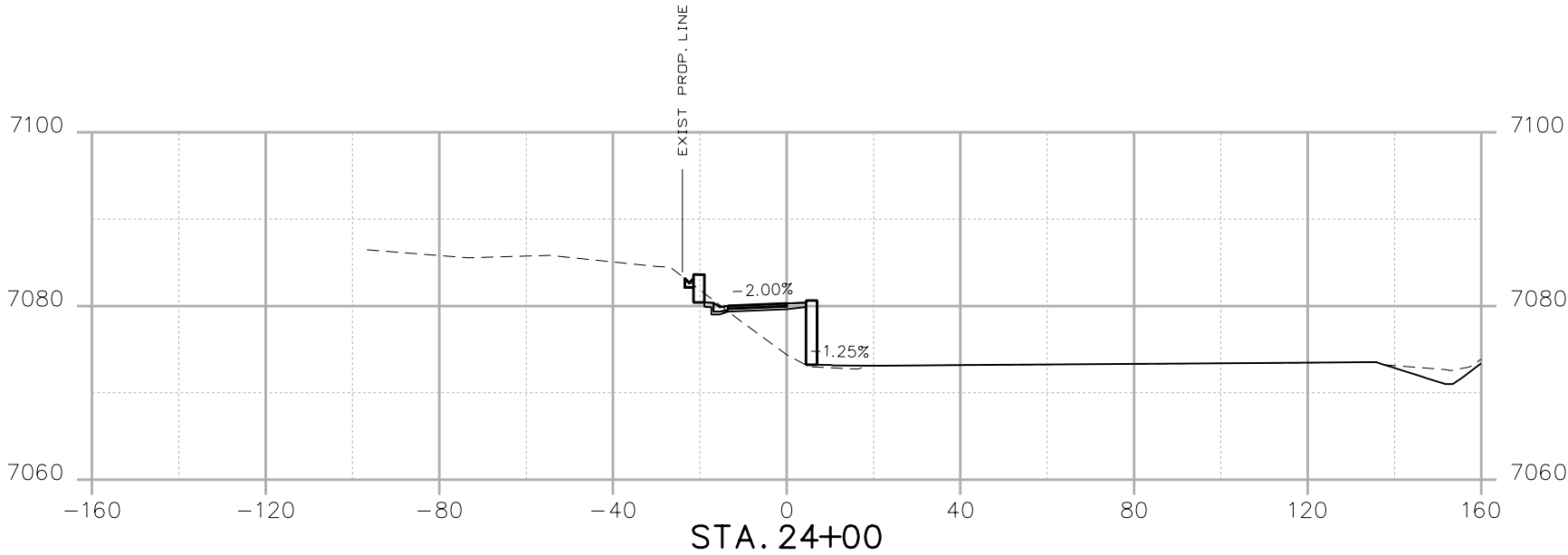


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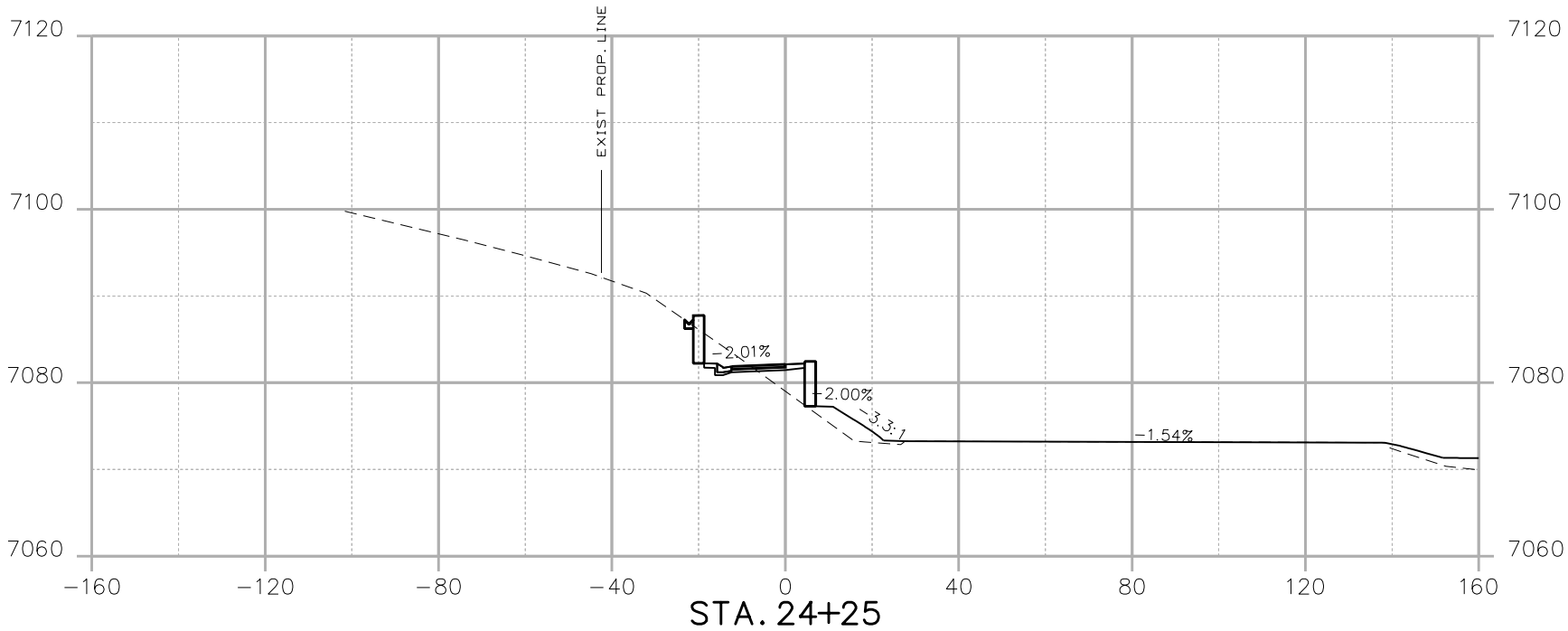
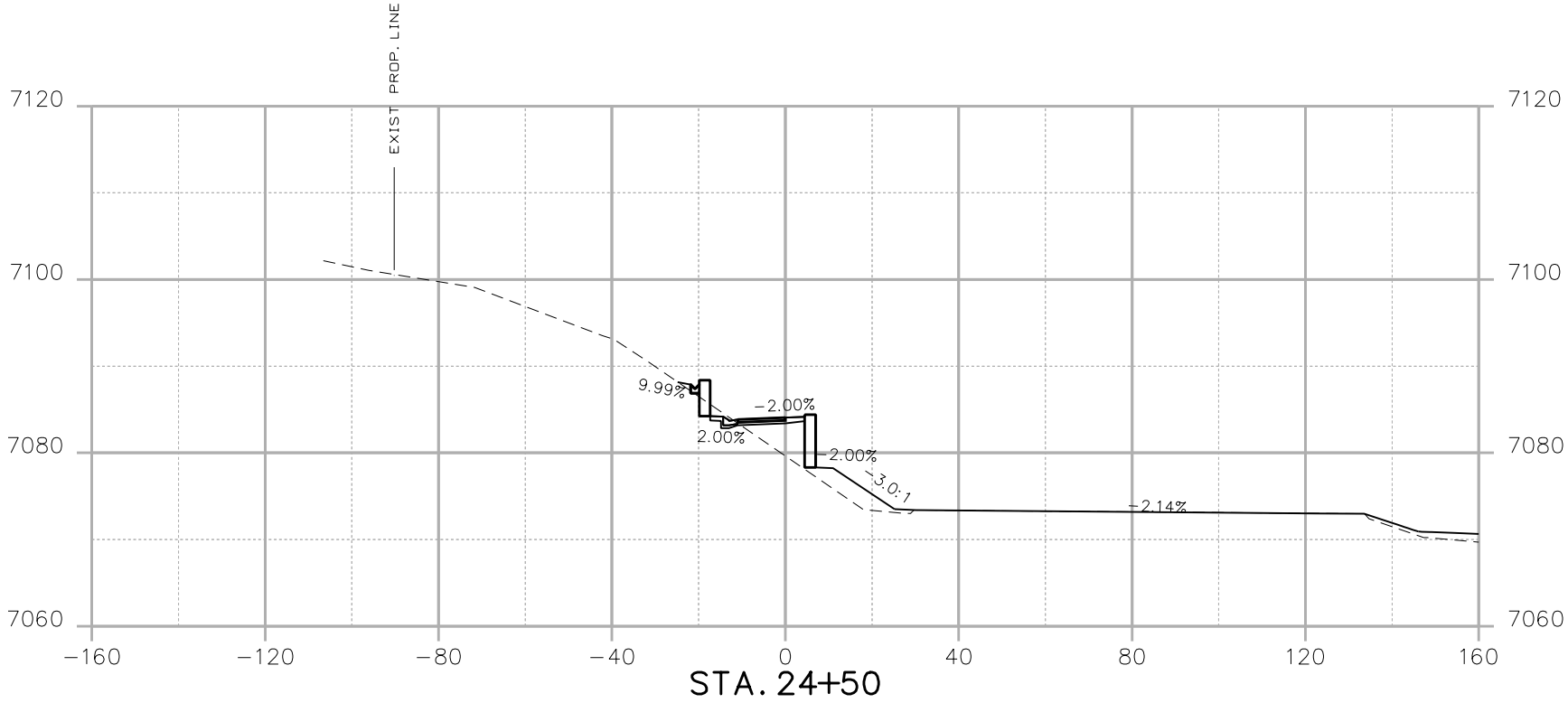


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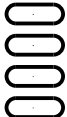
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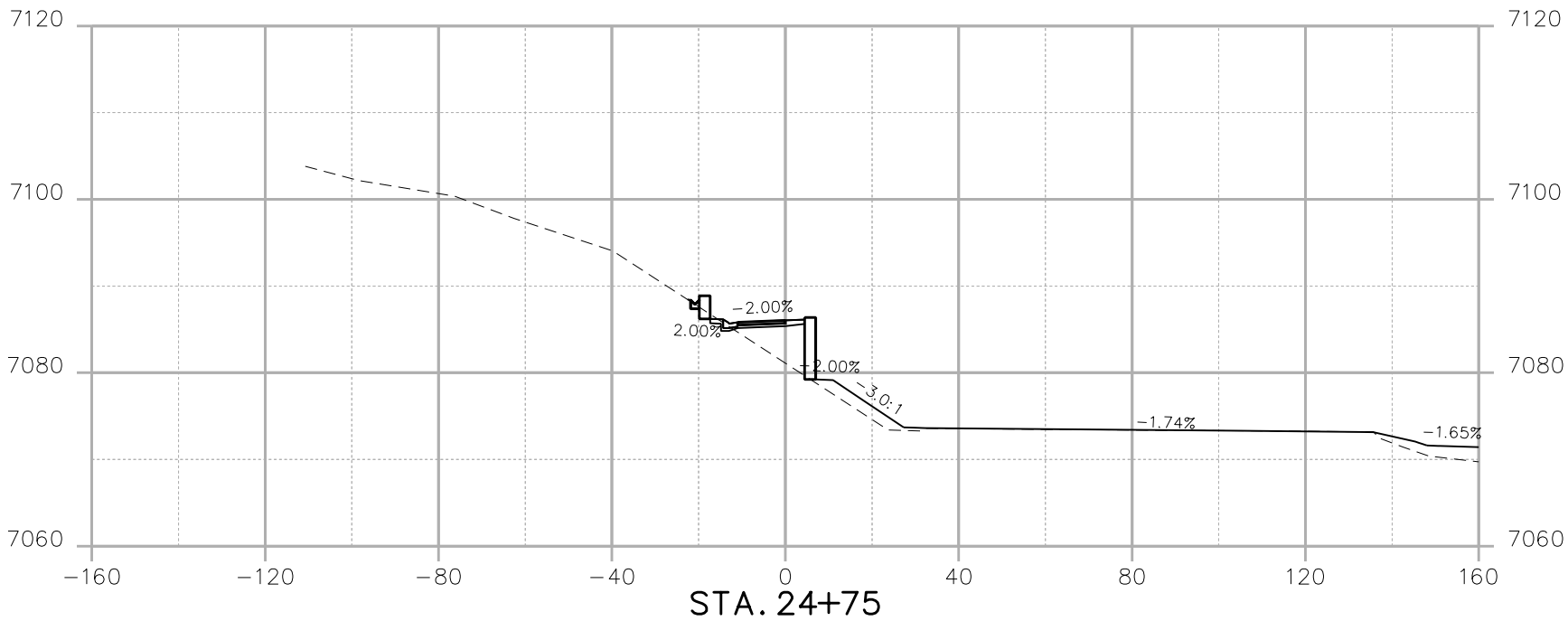
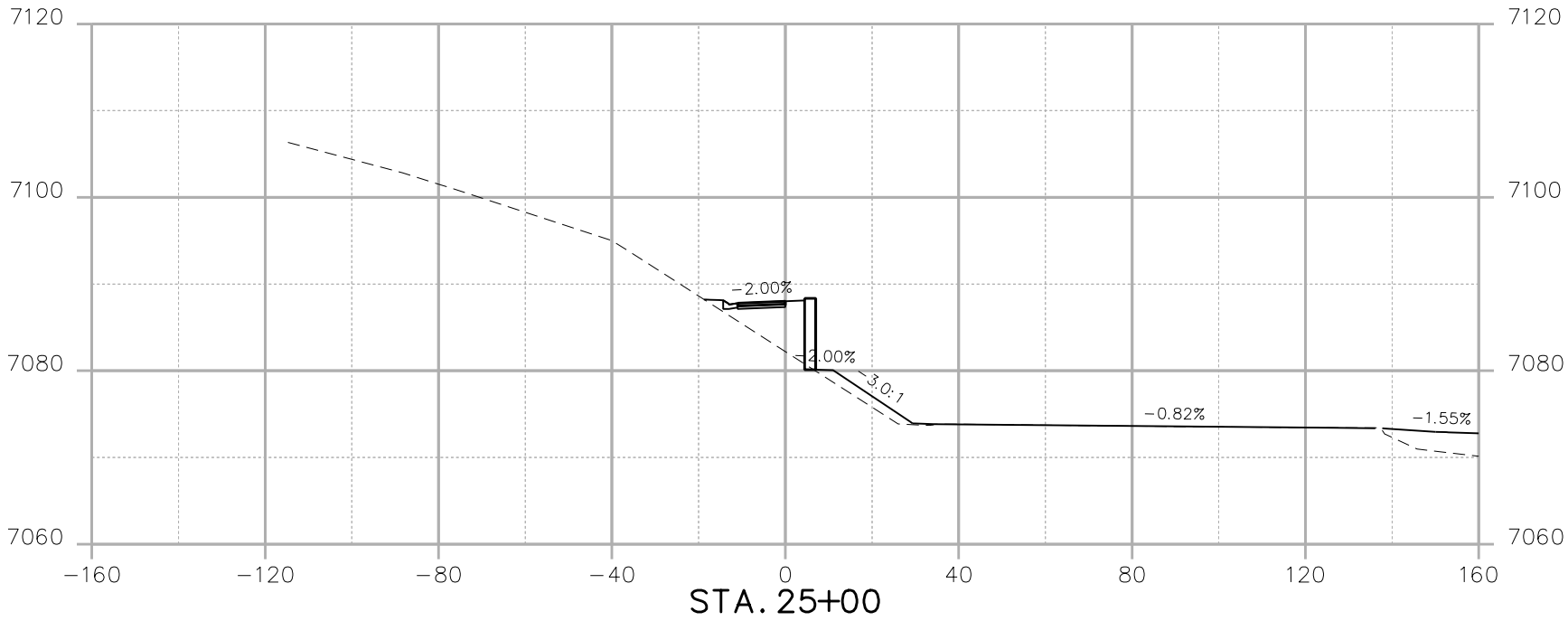
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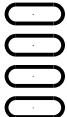
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- MONUMENT ACADEMY  
RECIRCULATION PLAN TIE-IN



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Sheet Revisions

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BACK OF SCHOOL ACCESS

Designer: J. WILKERT

Detailer: J. WILKERT

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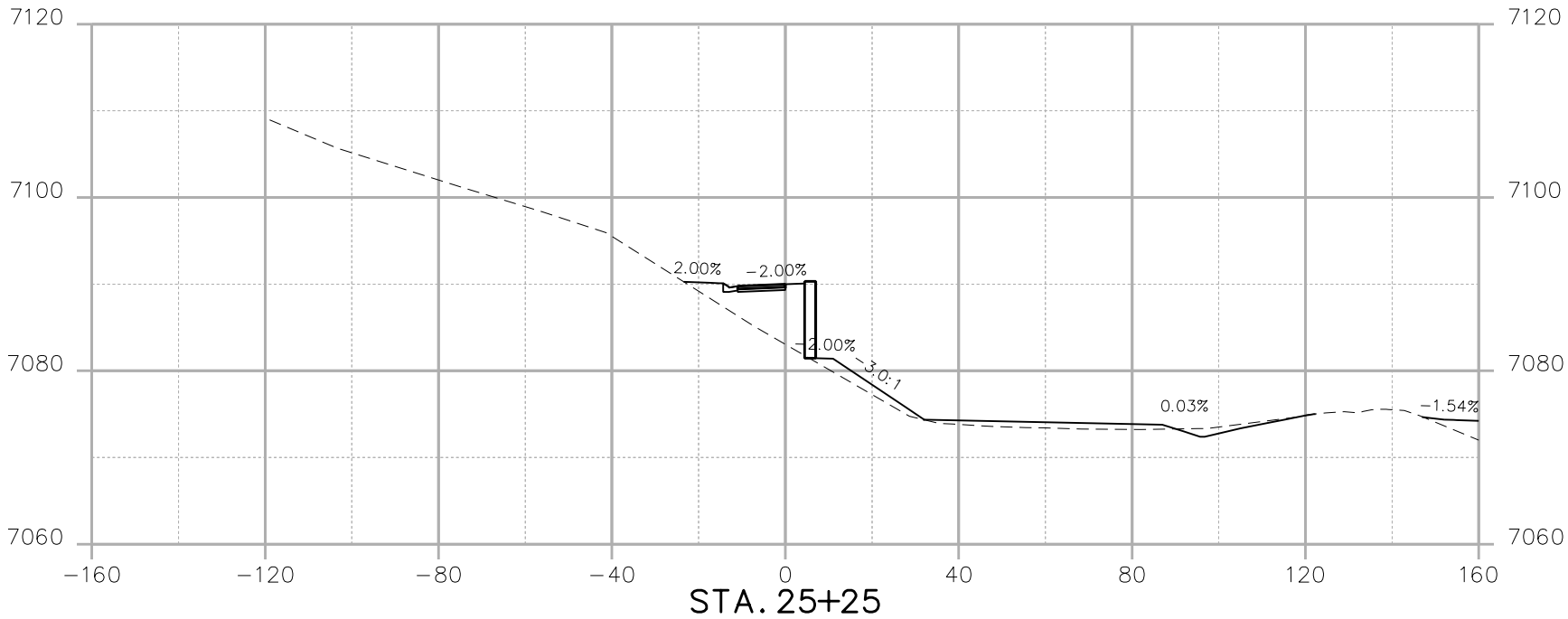
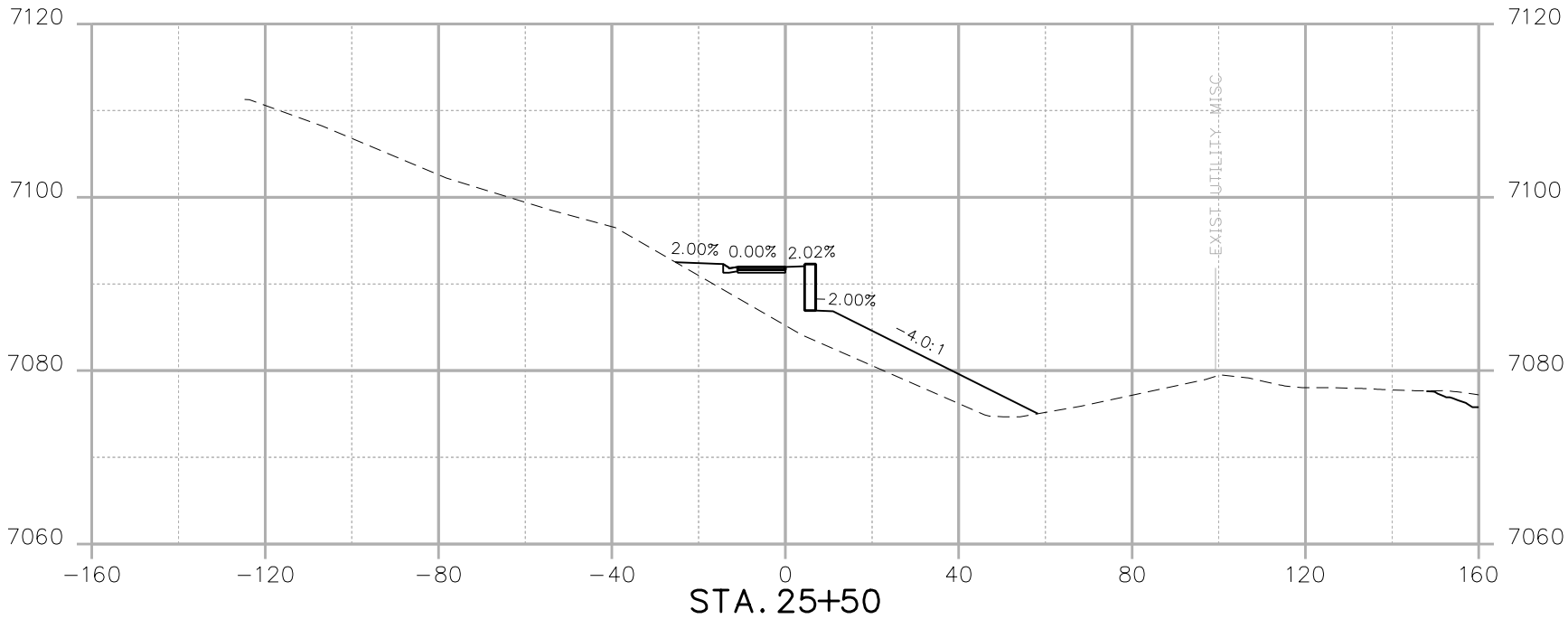
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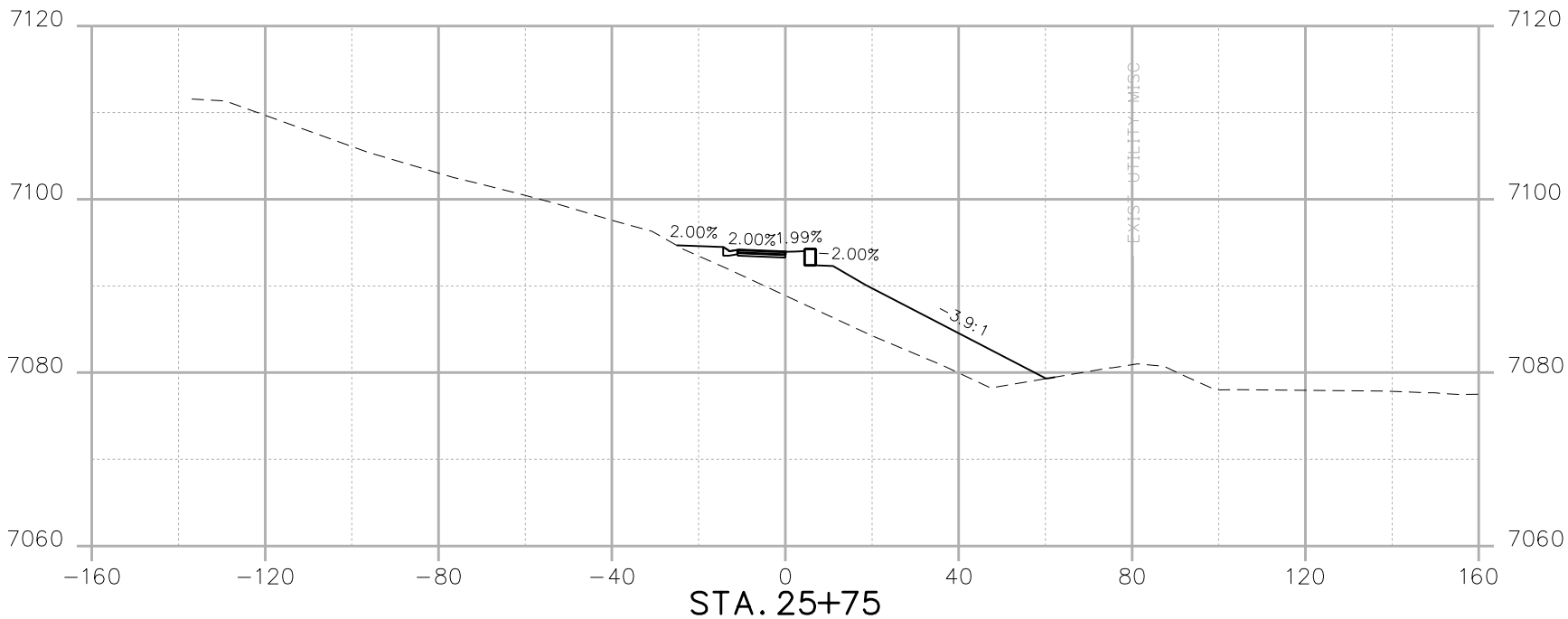
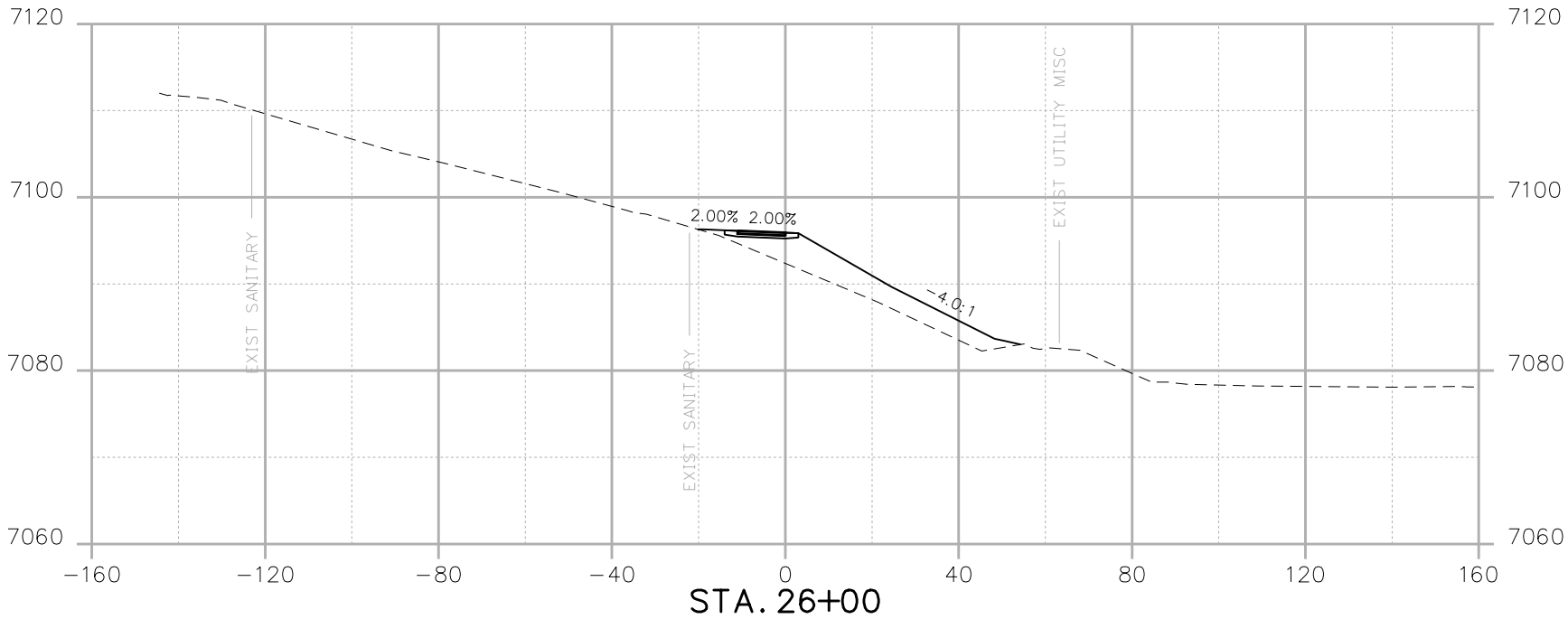


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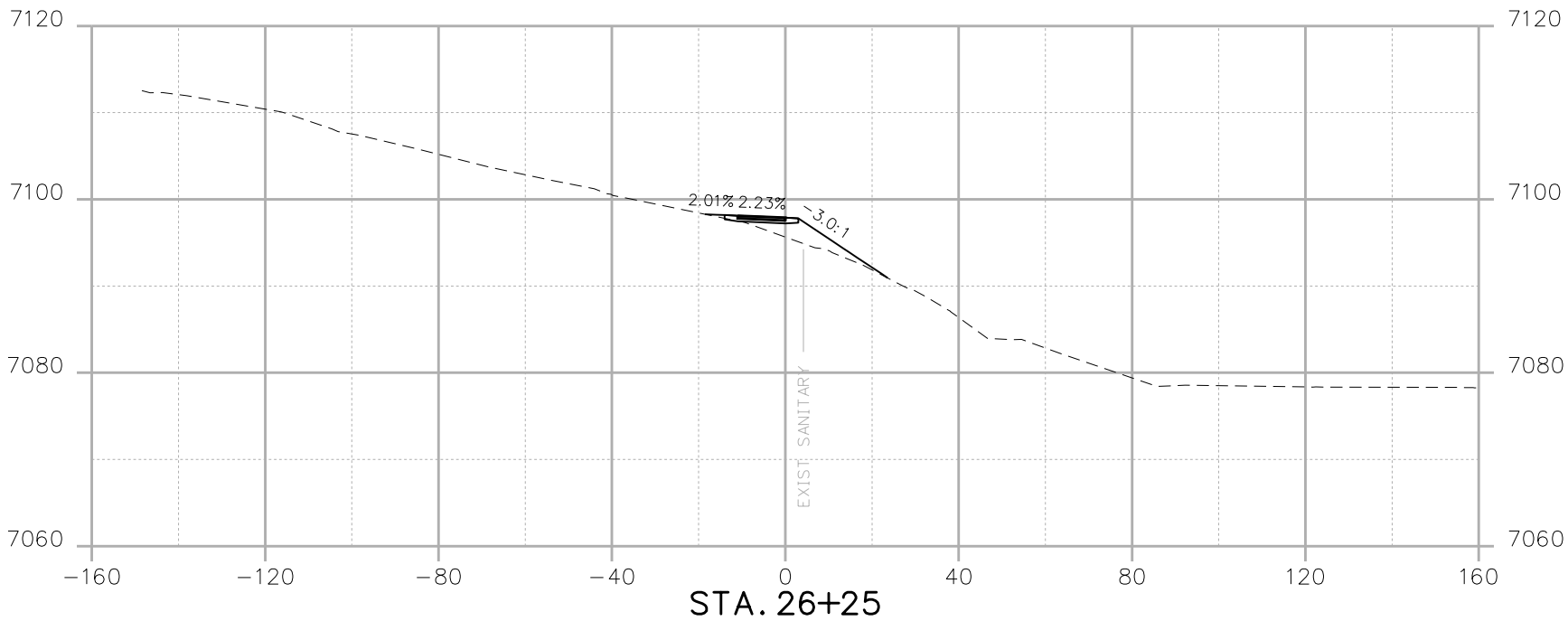
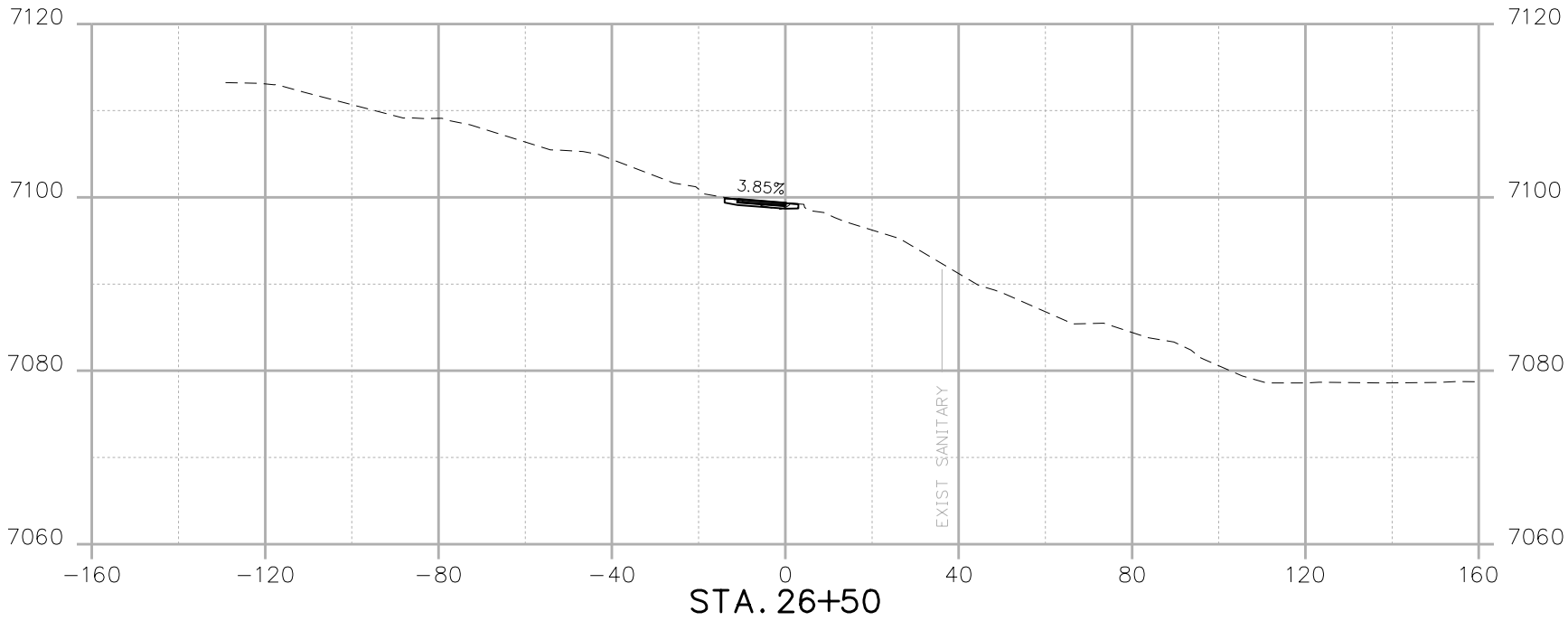


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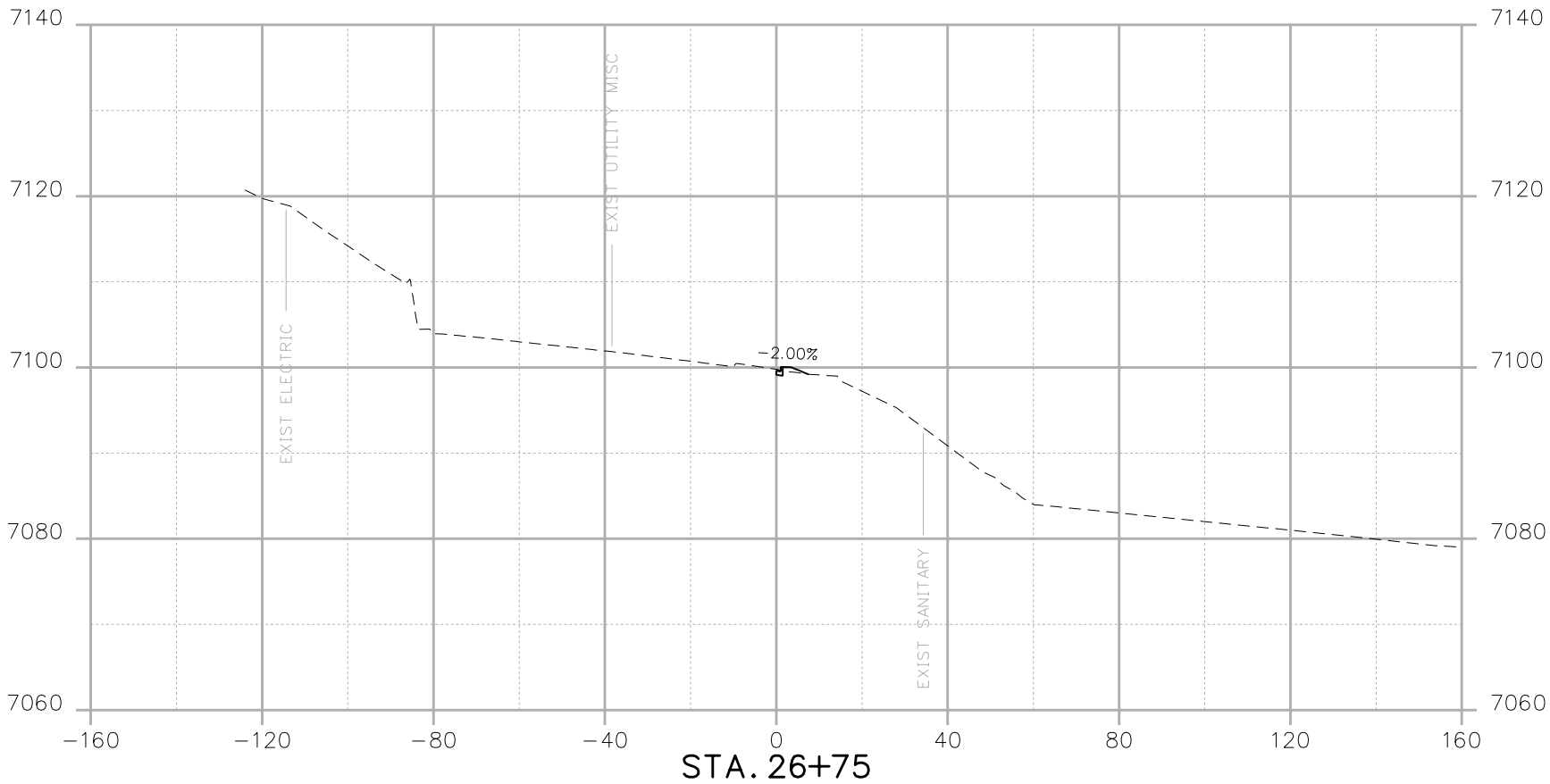


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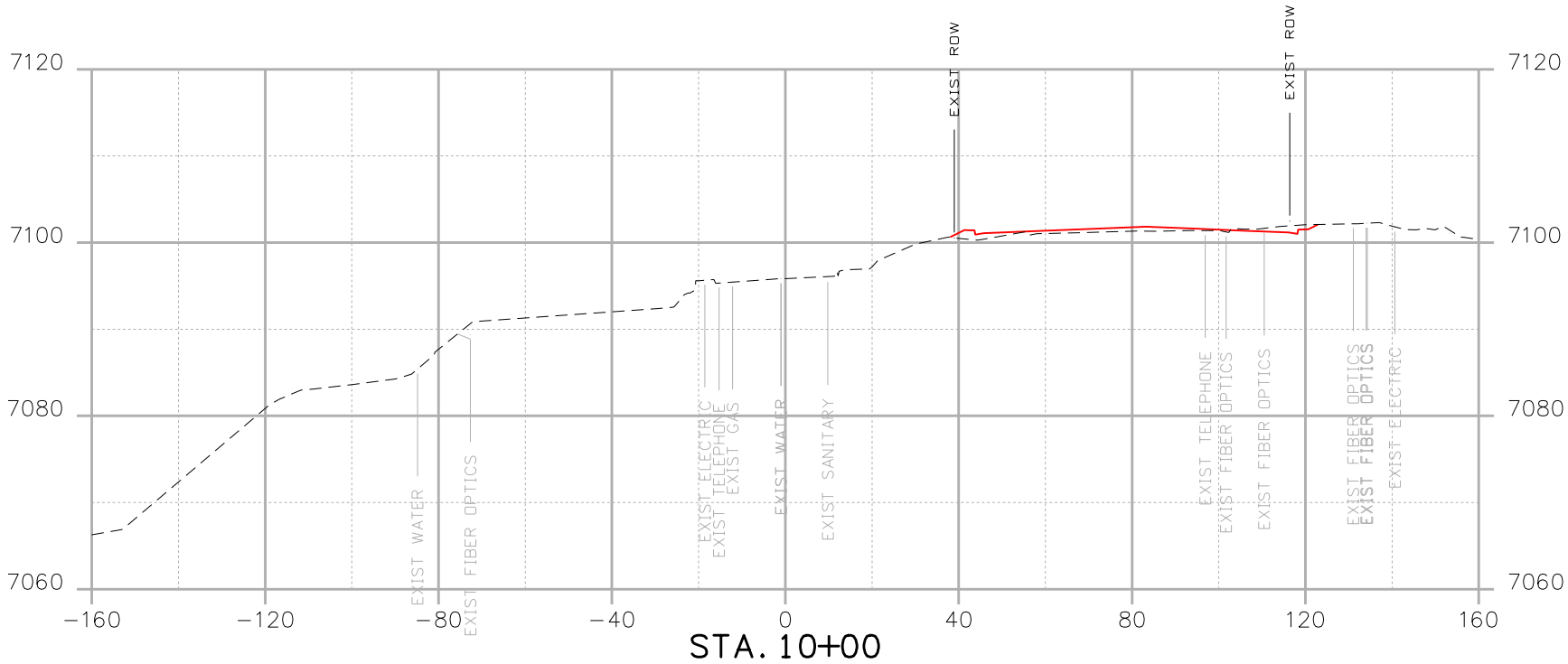
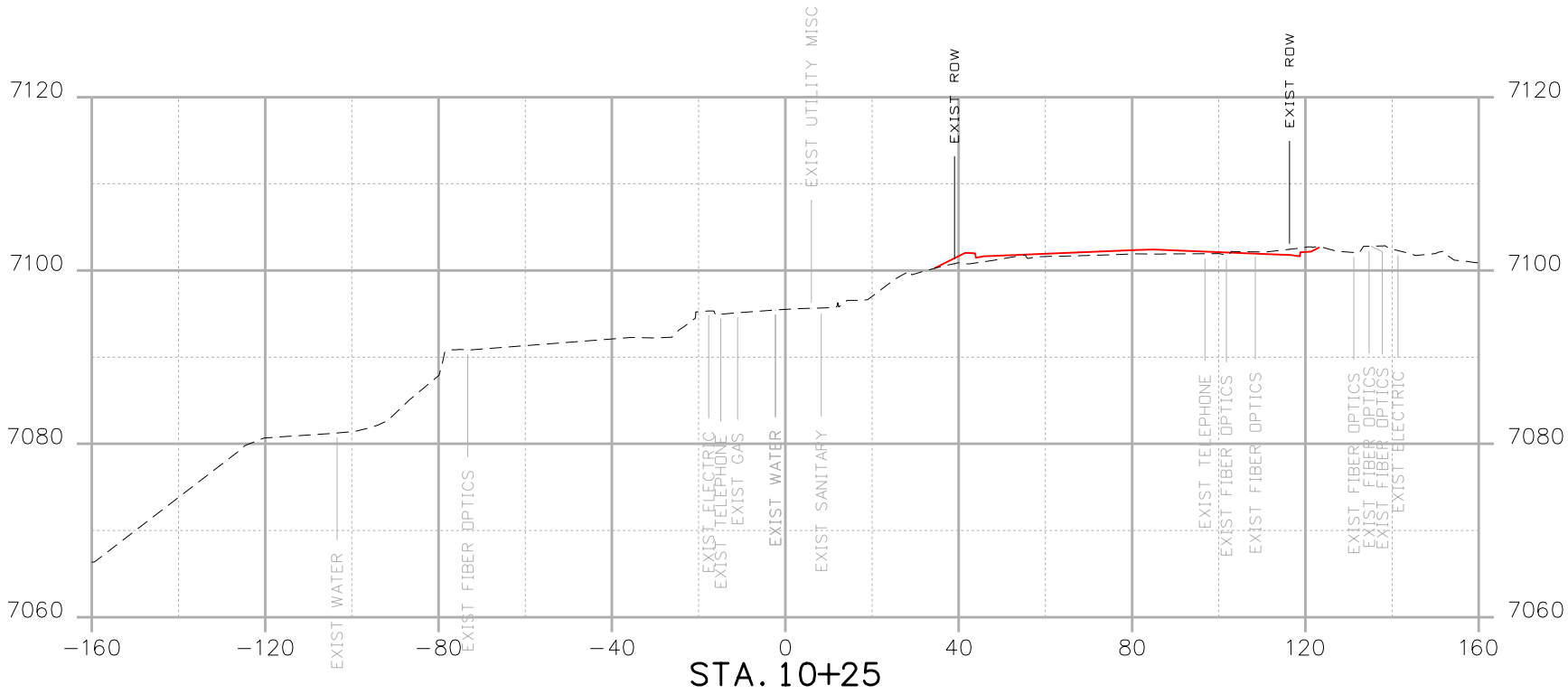
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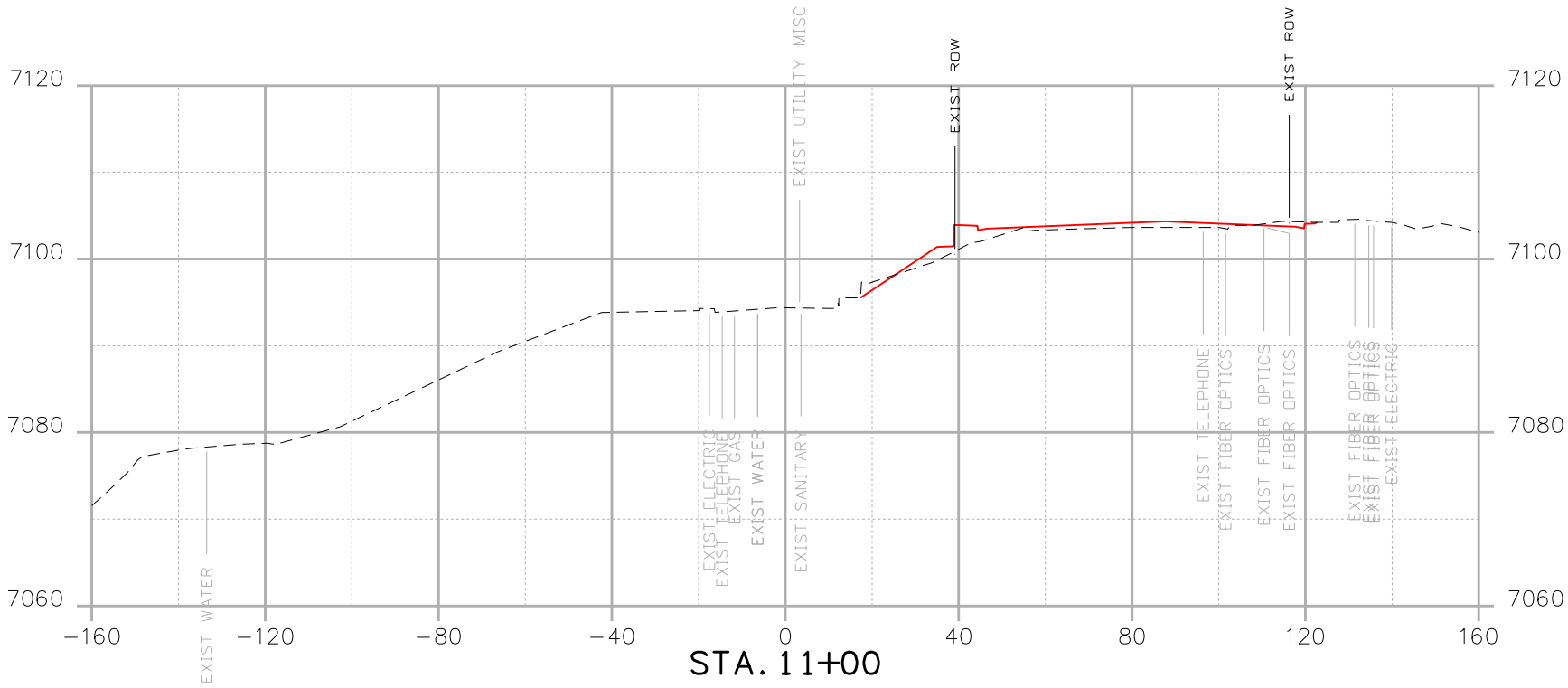
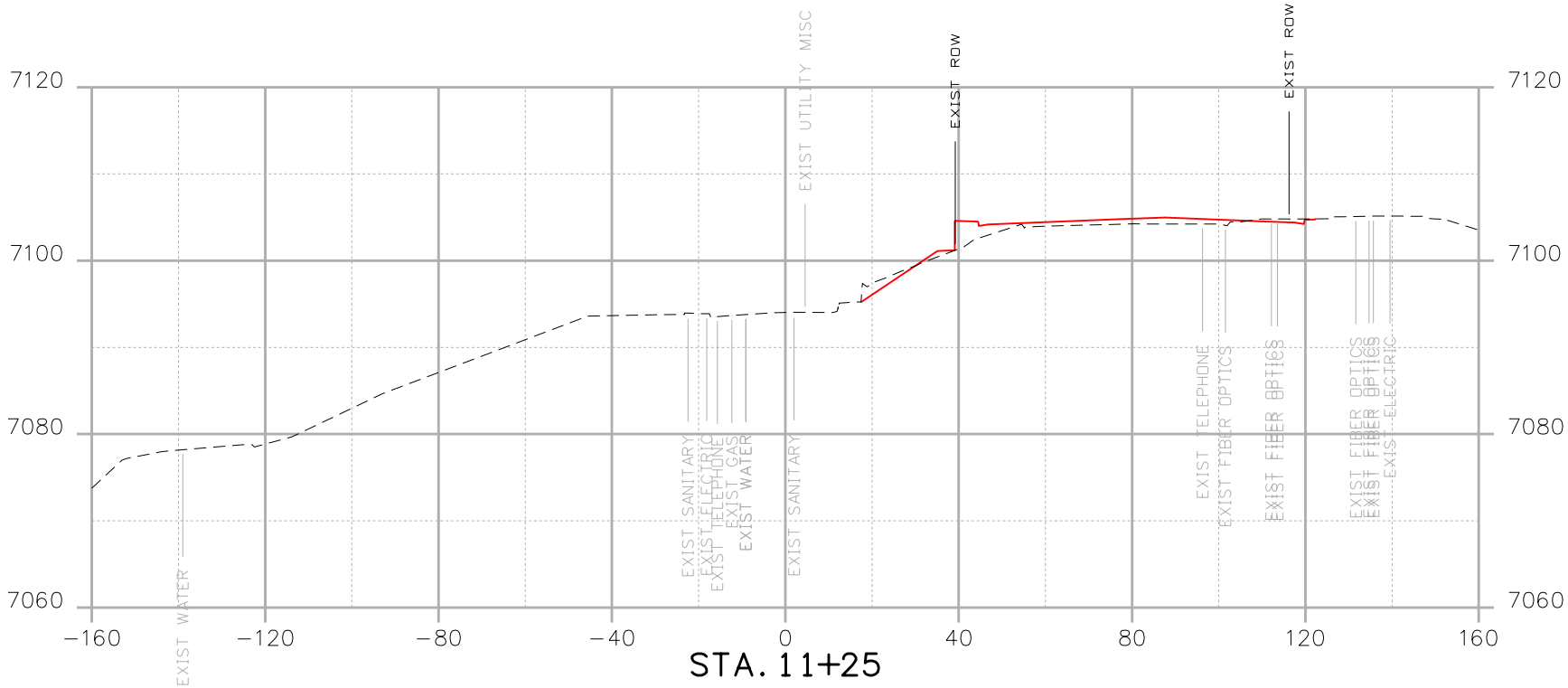
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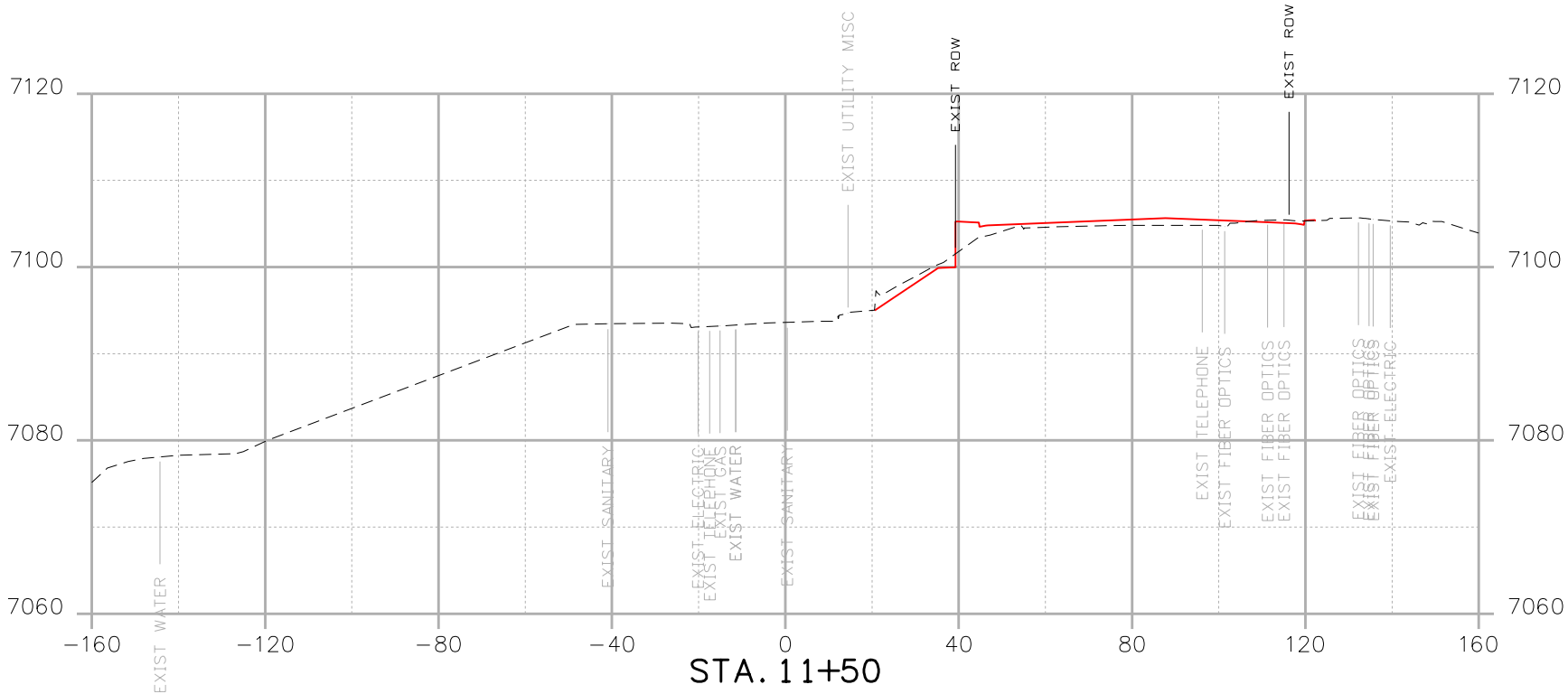
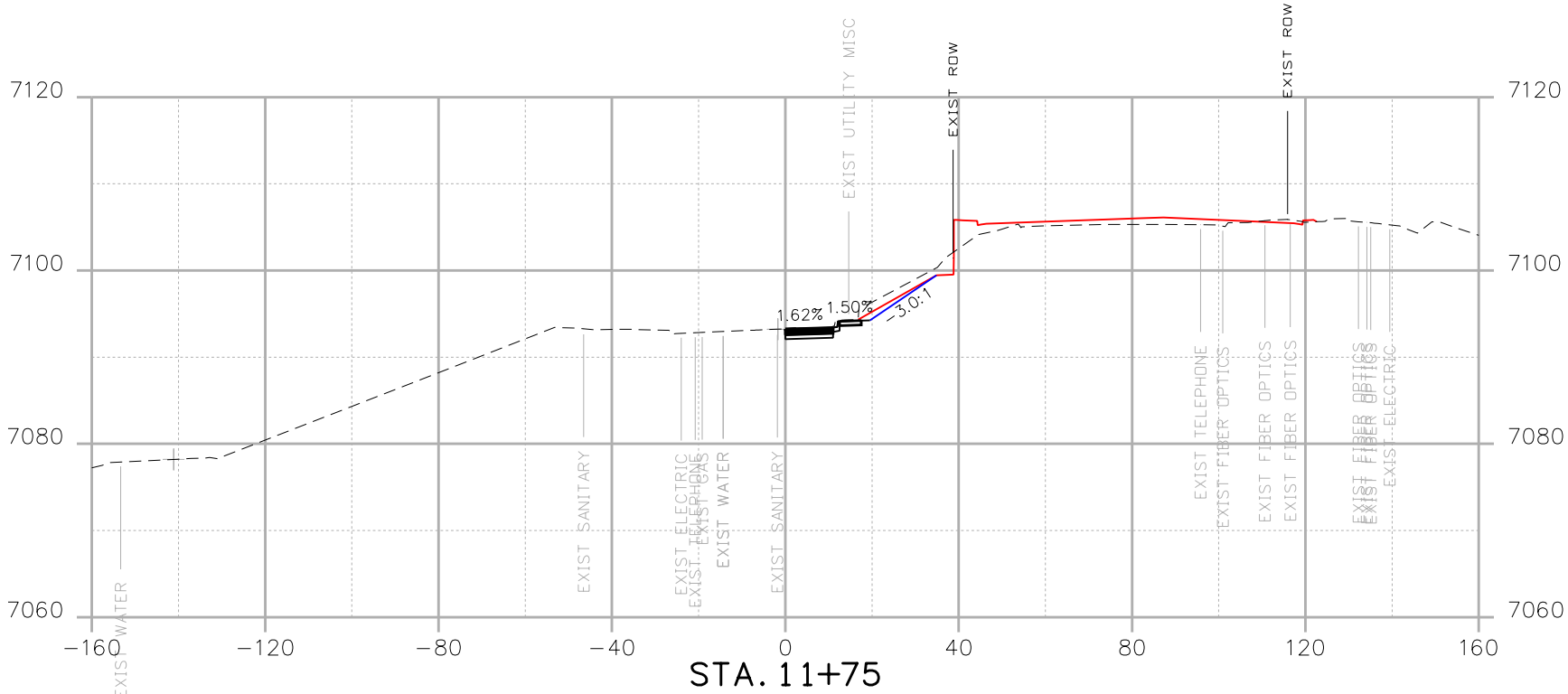


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- MONUMENT ACADEMY  
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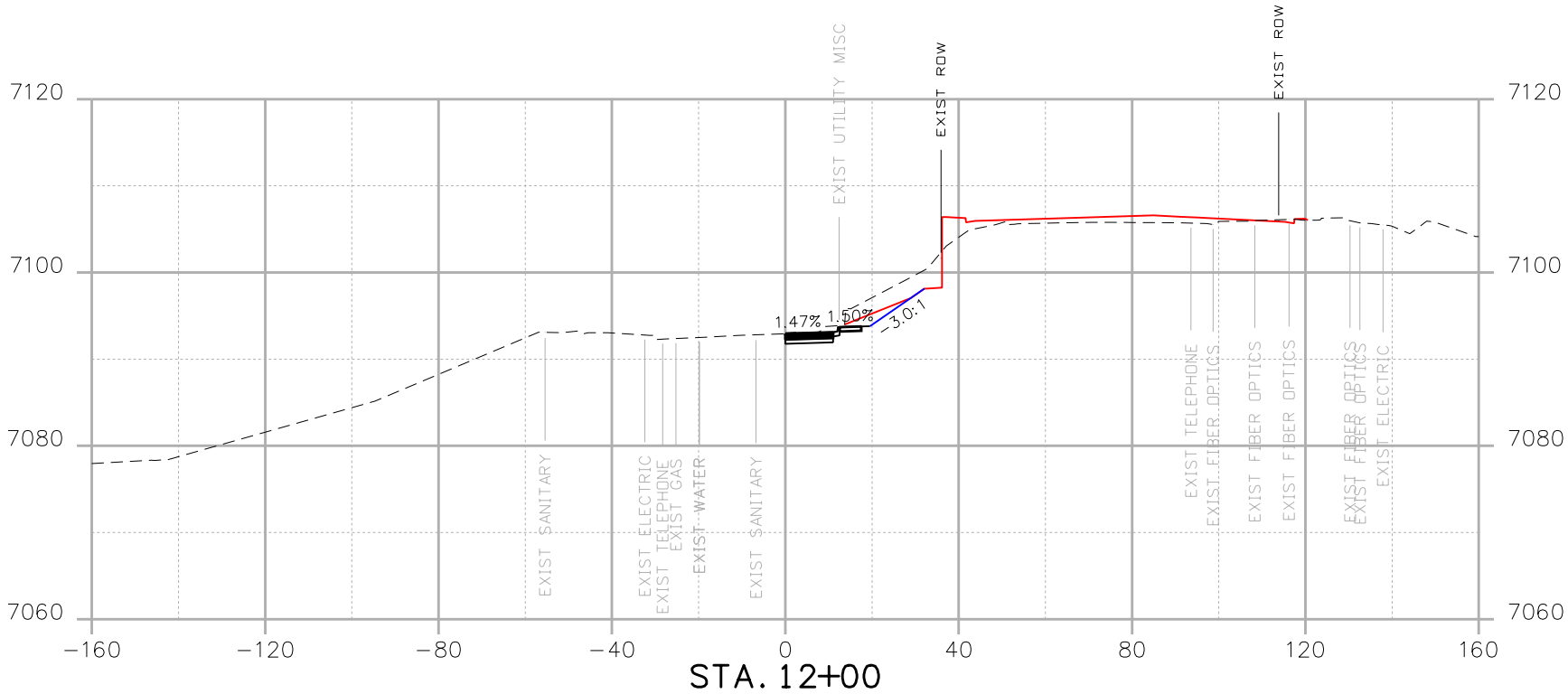
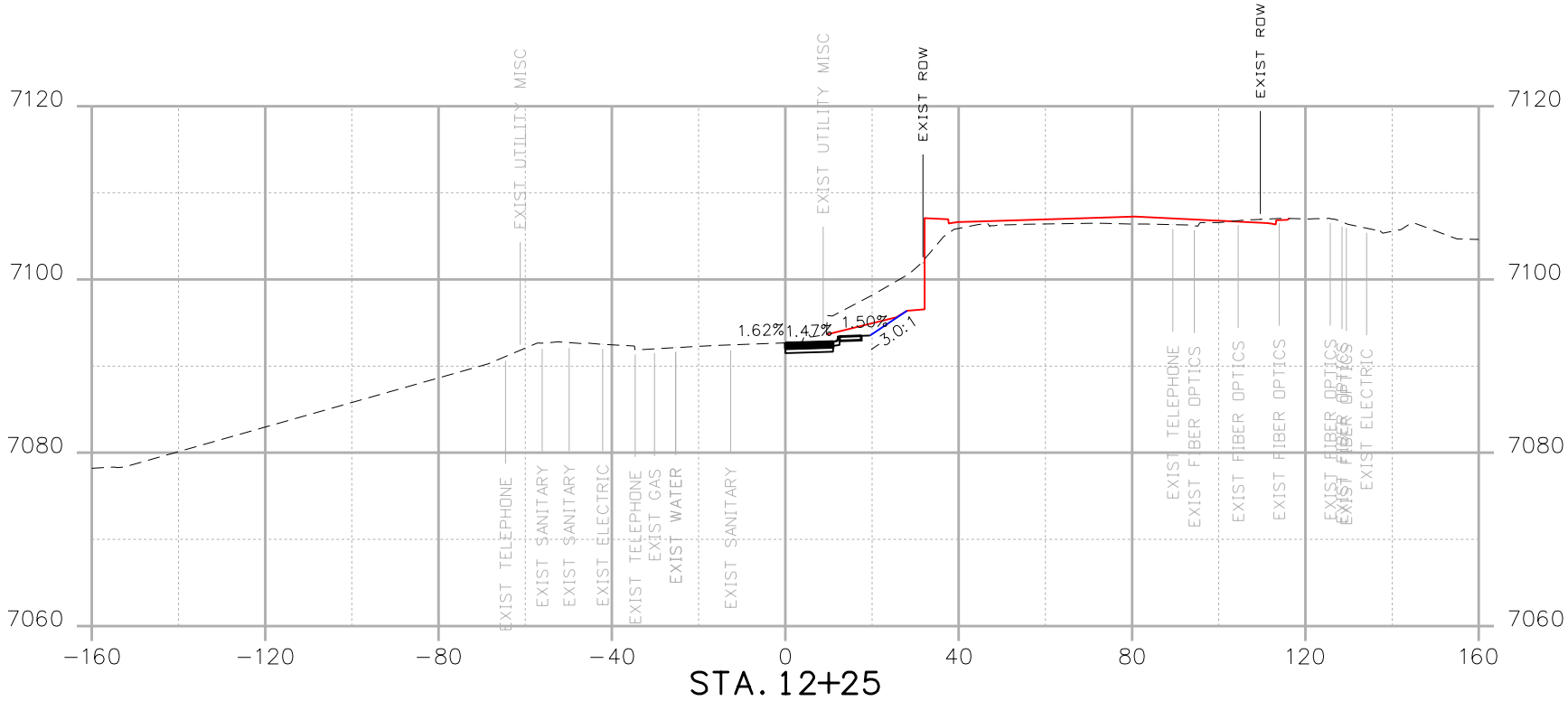
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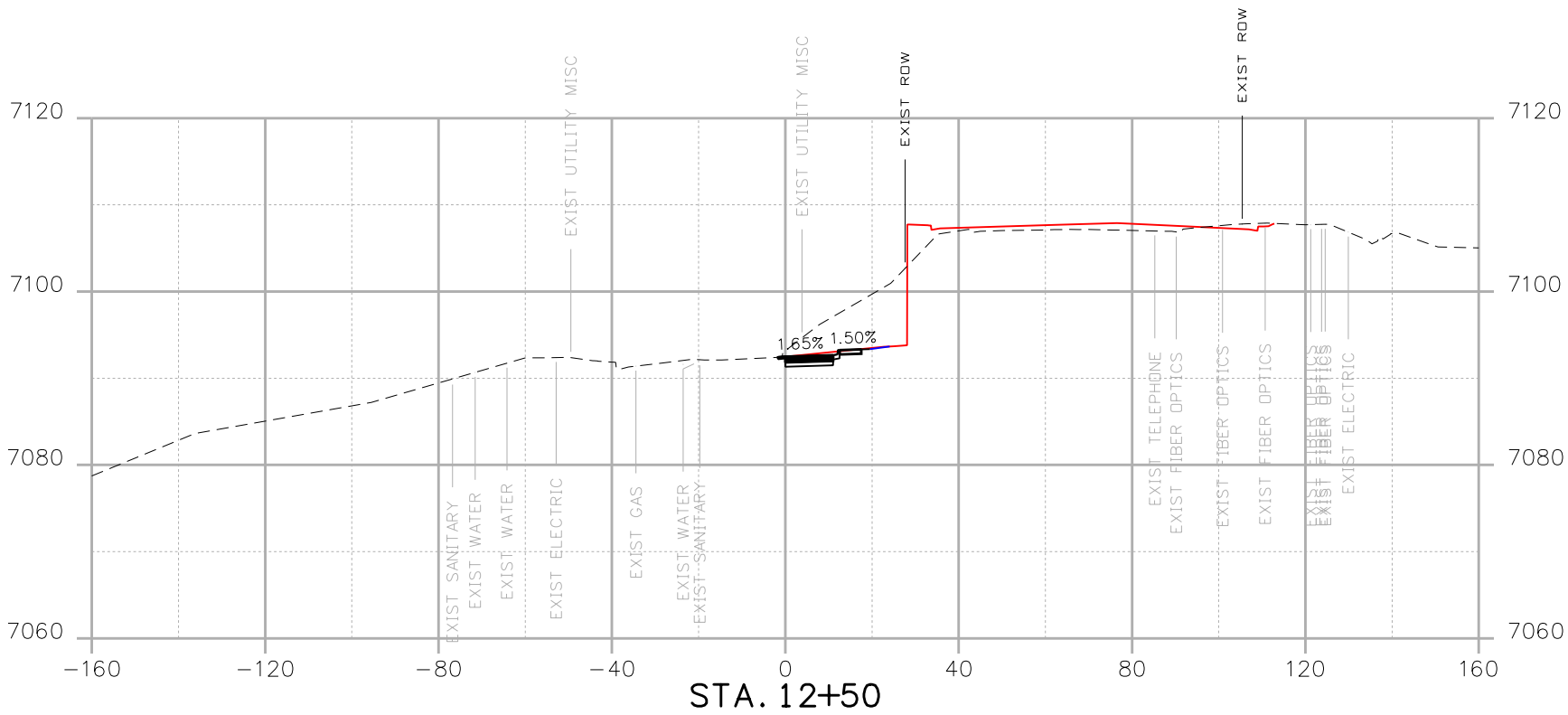
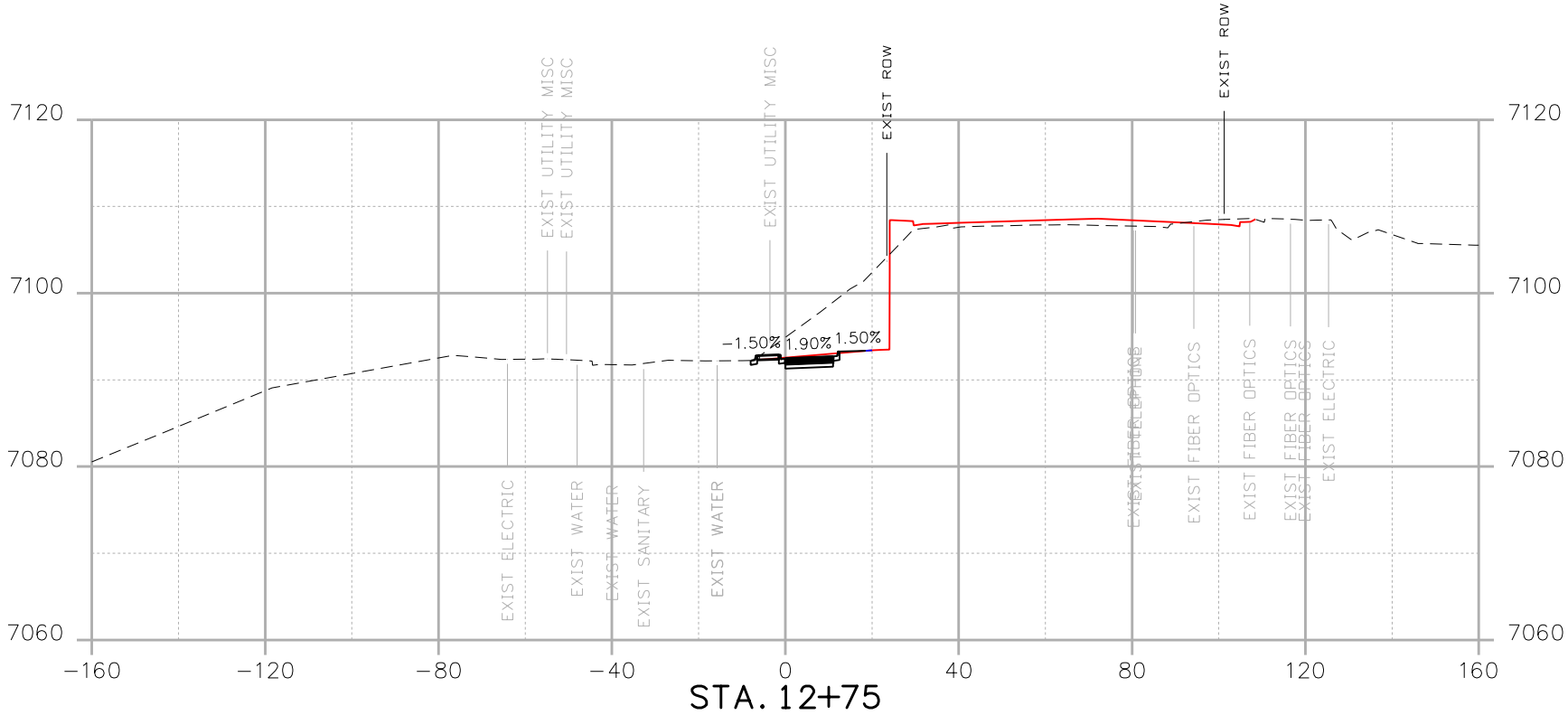


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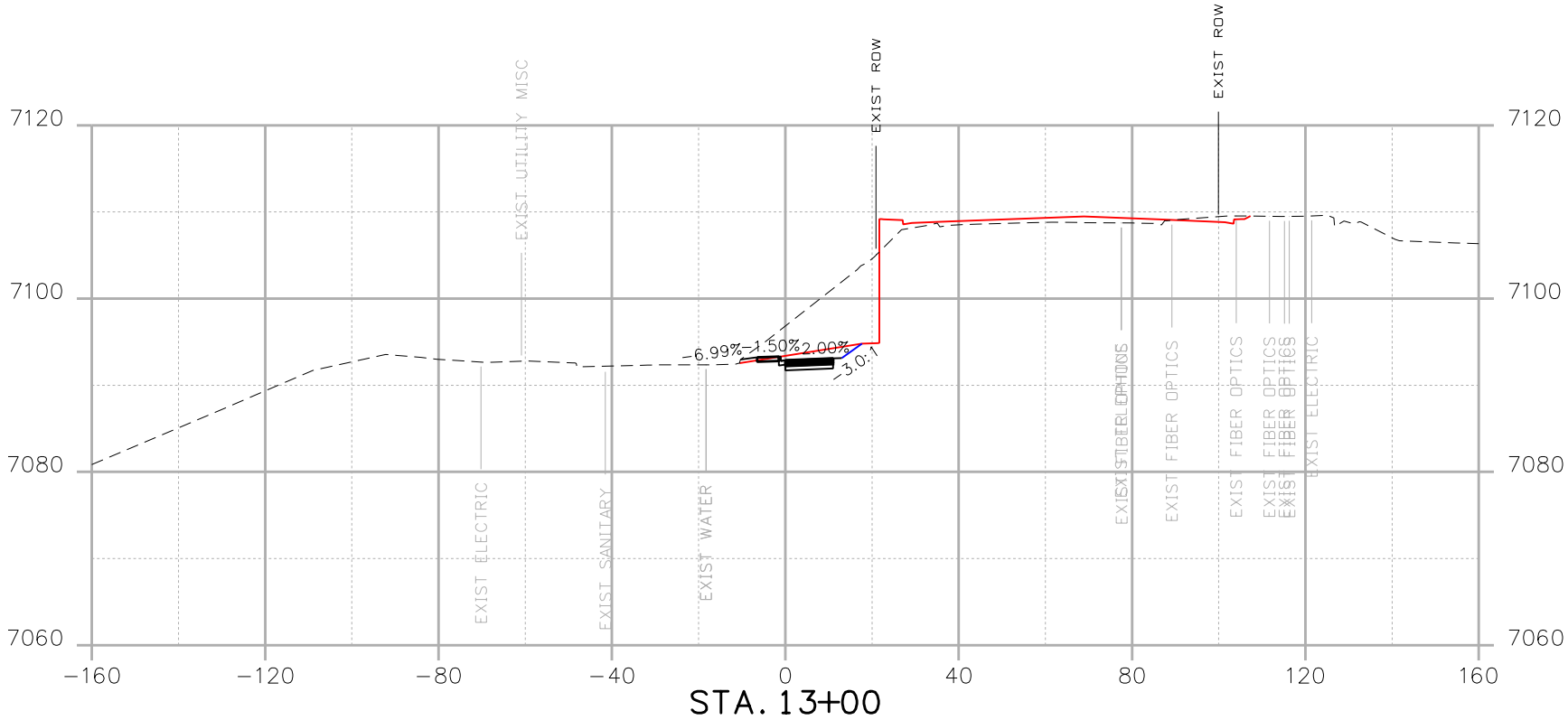
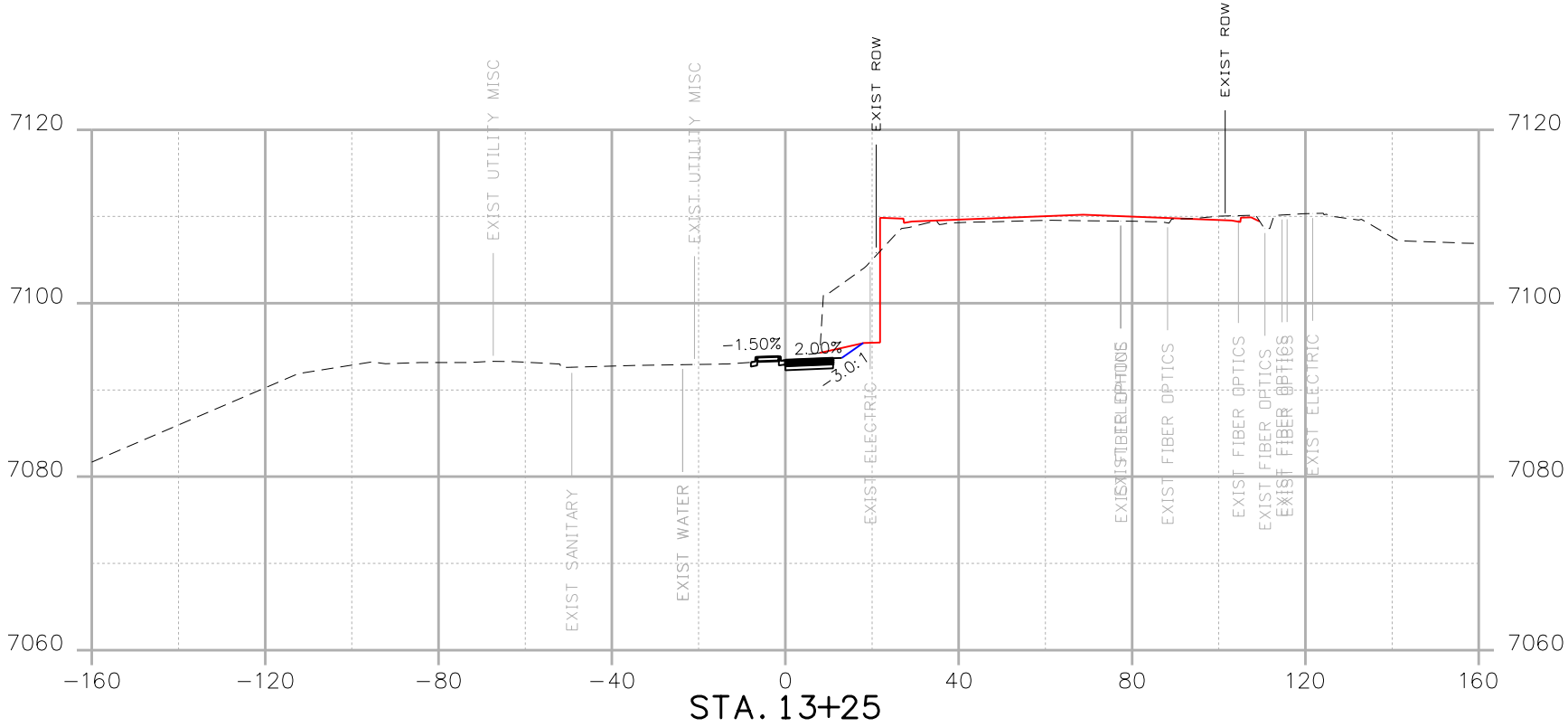


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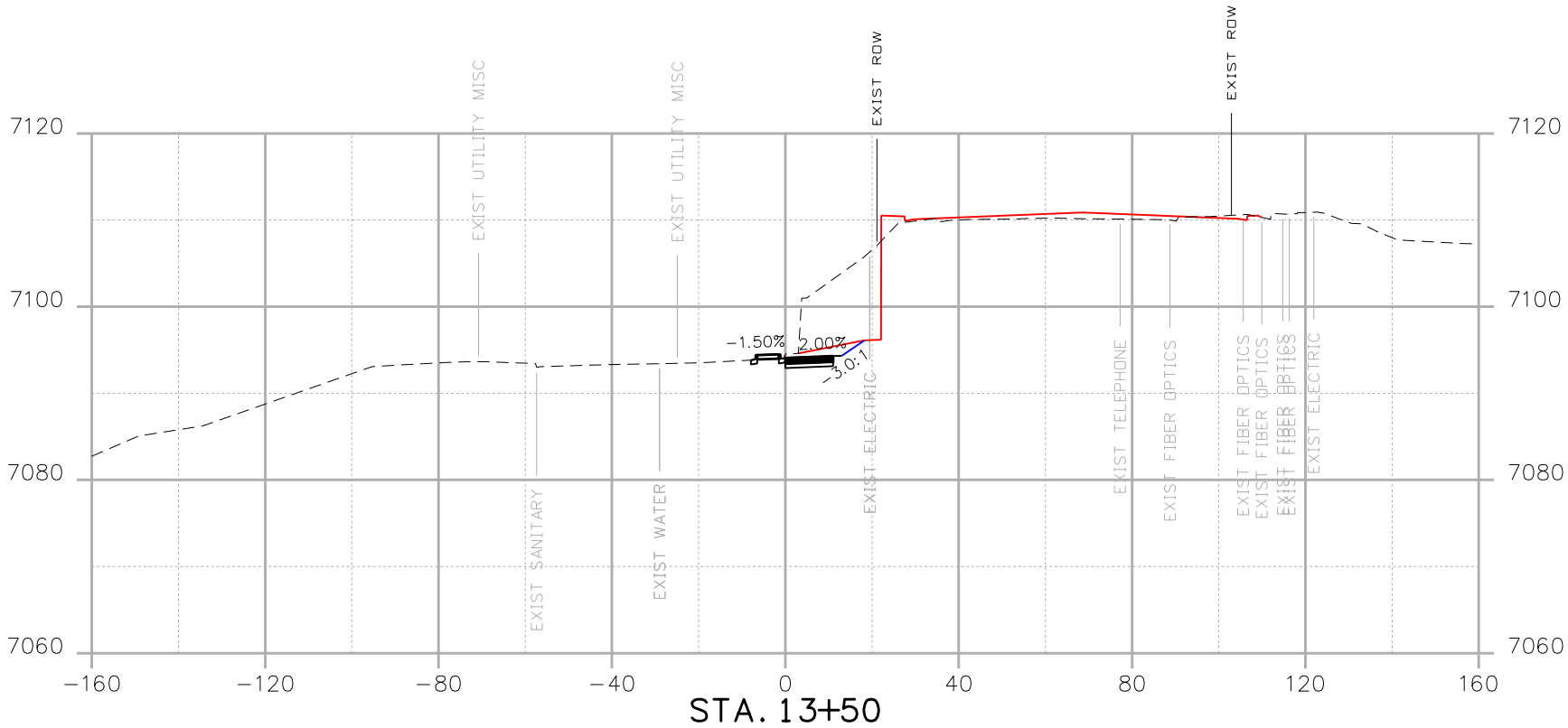
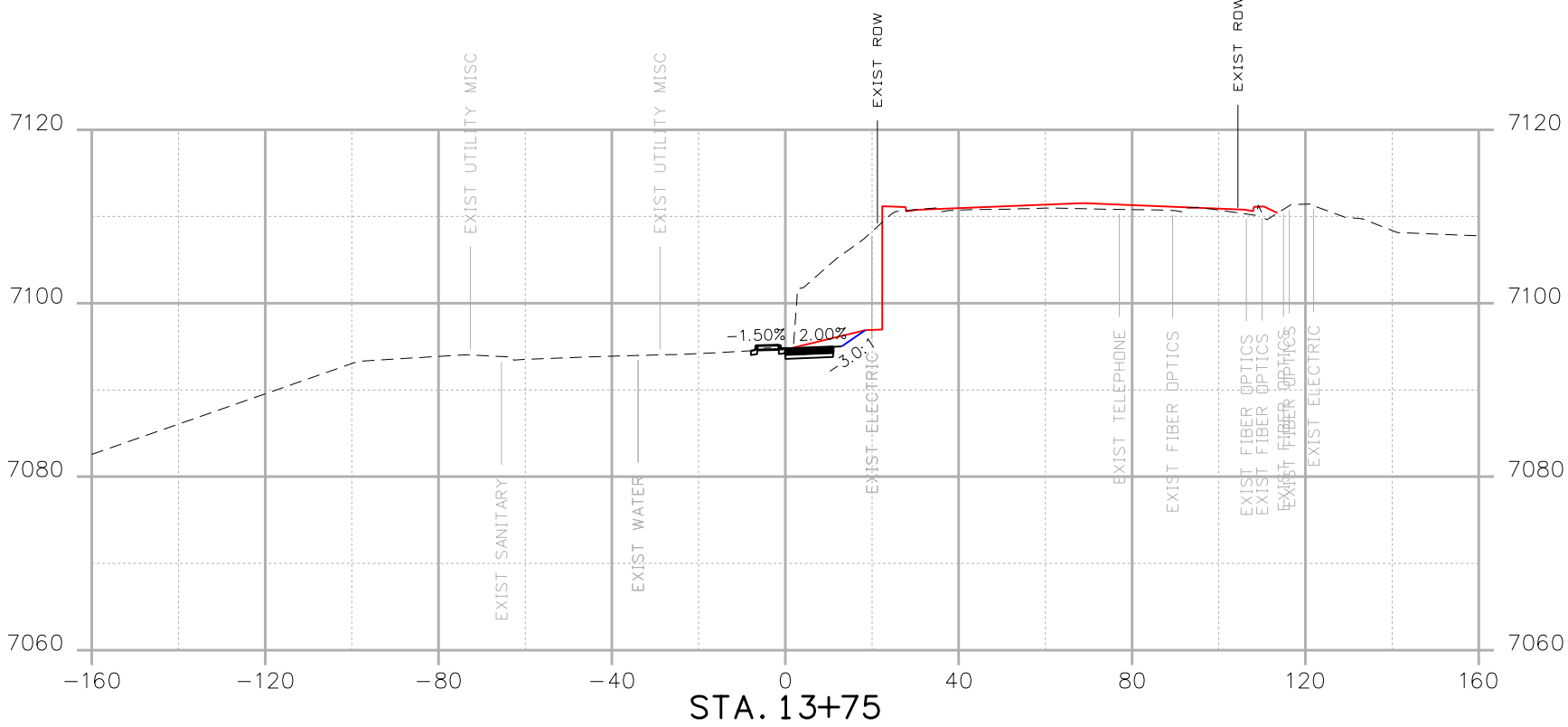


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- MONUMENT ACADEMY  
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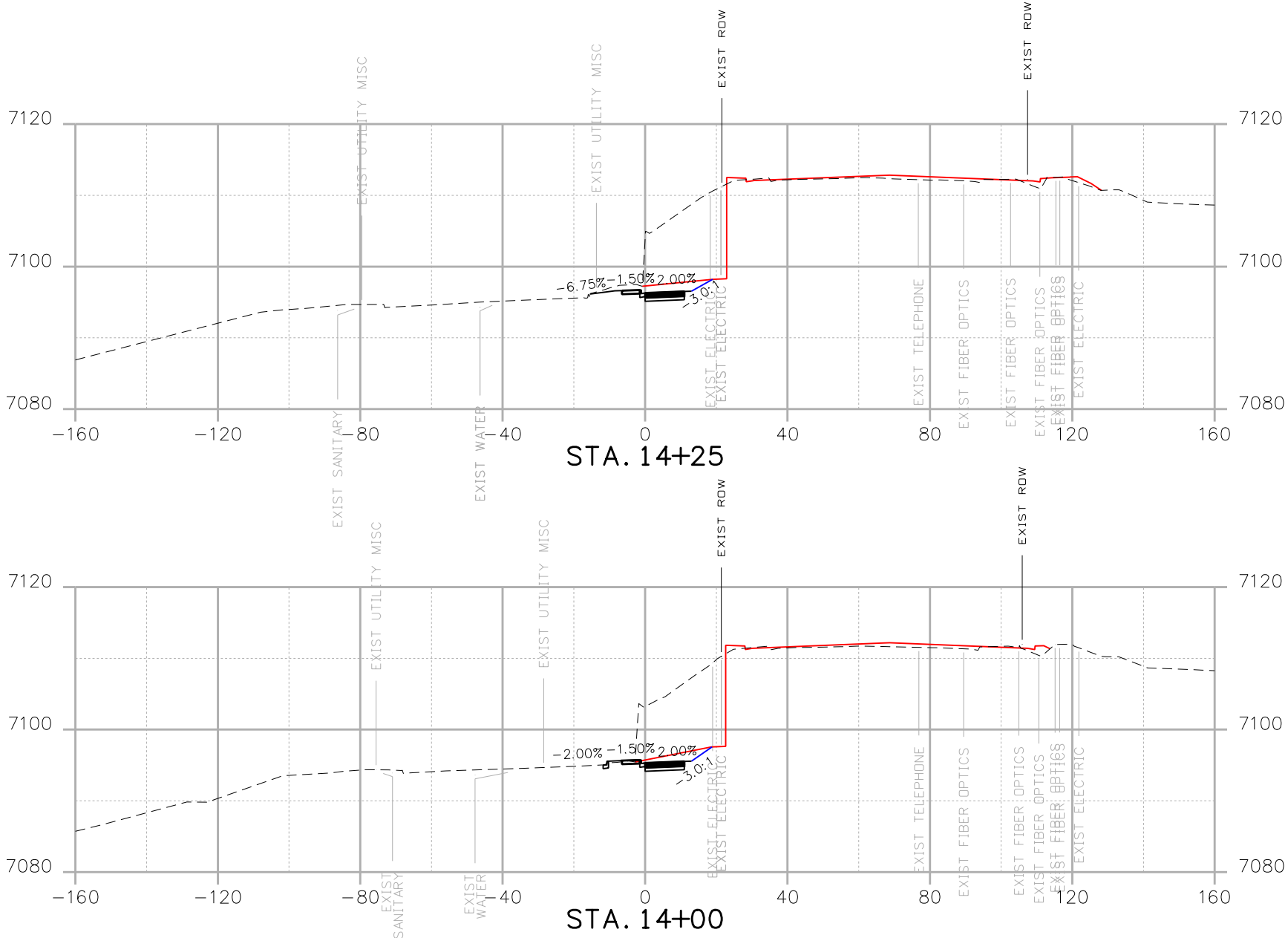
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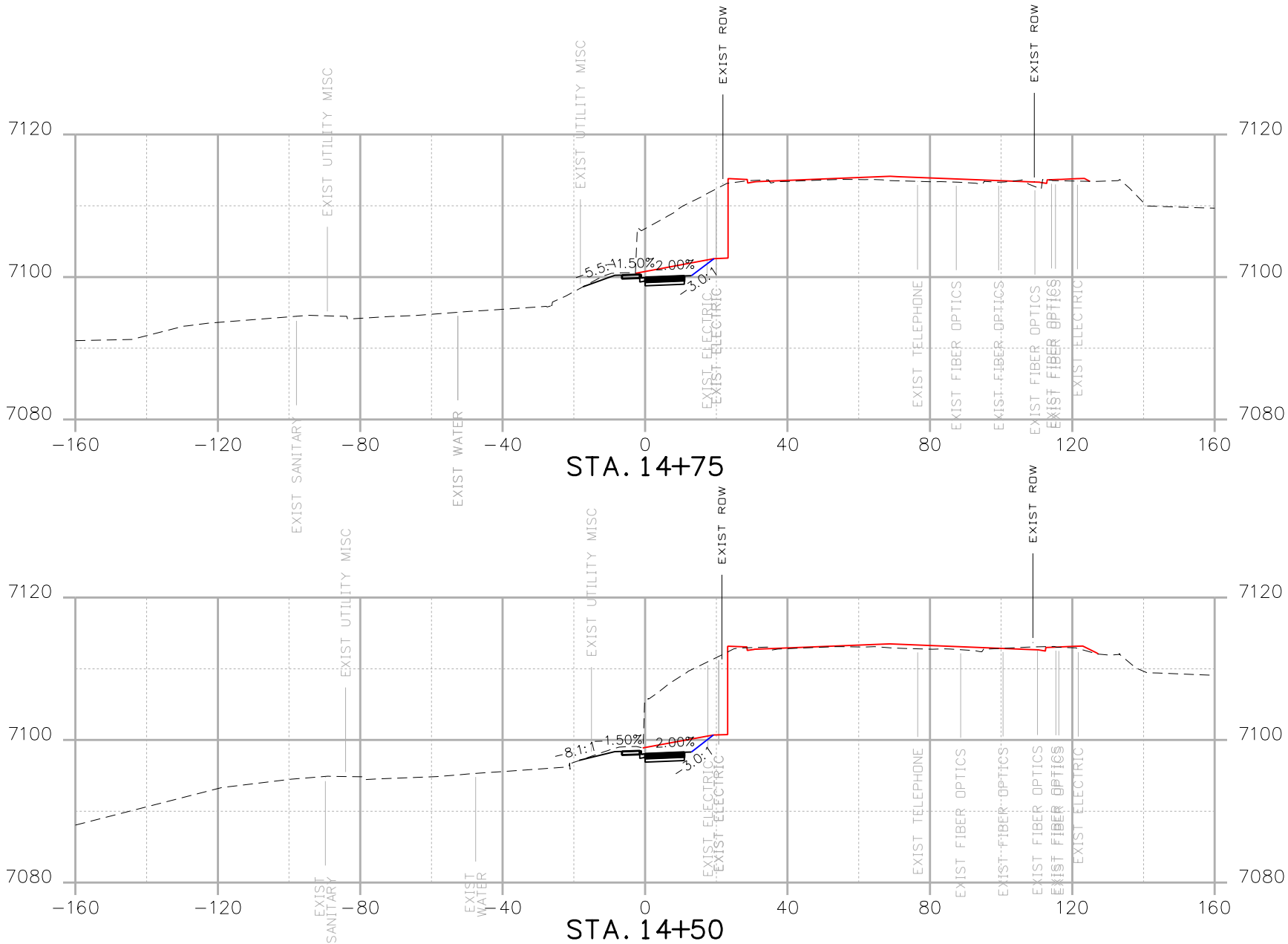


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Detailer: J. WILKERT

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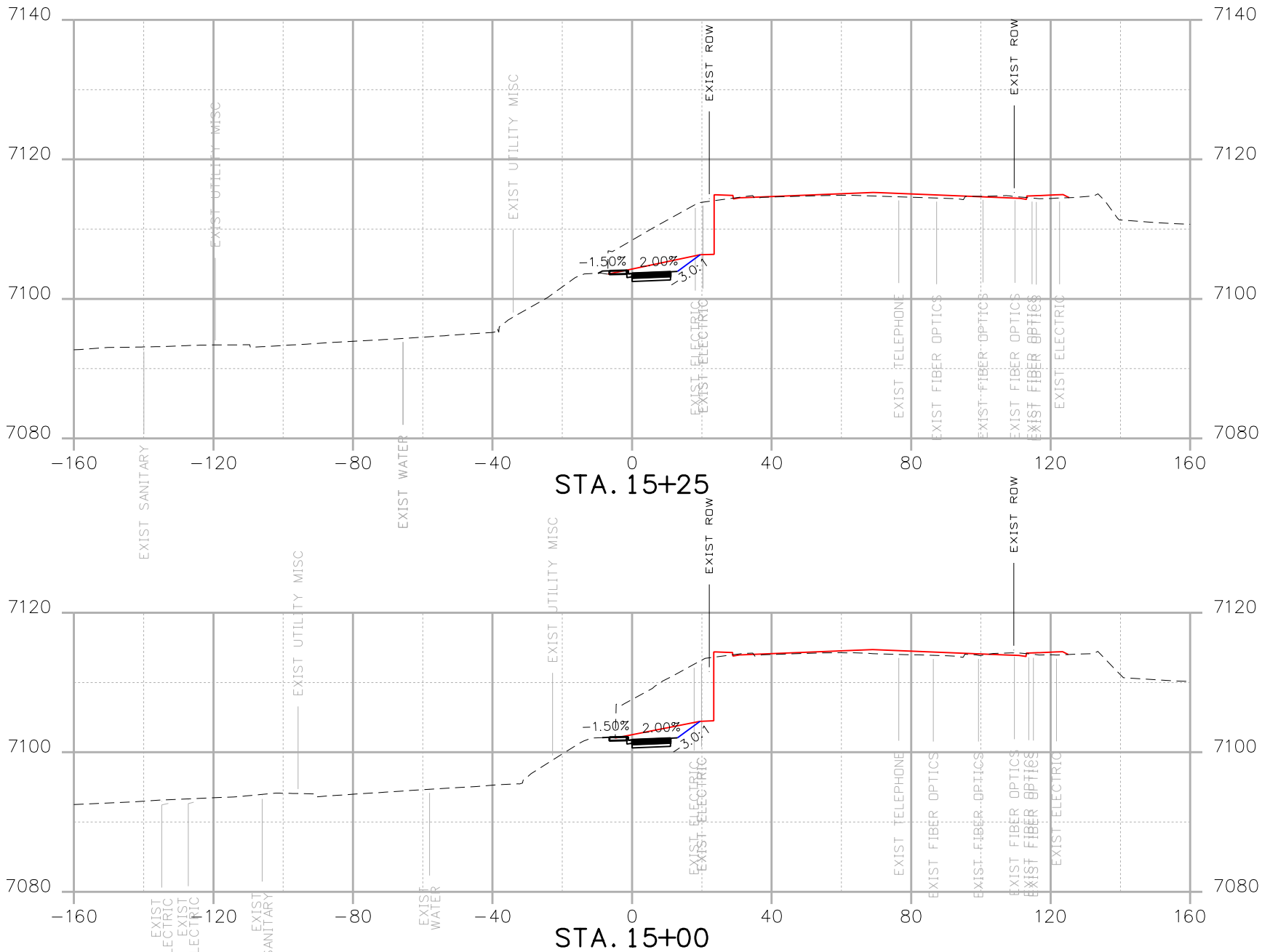
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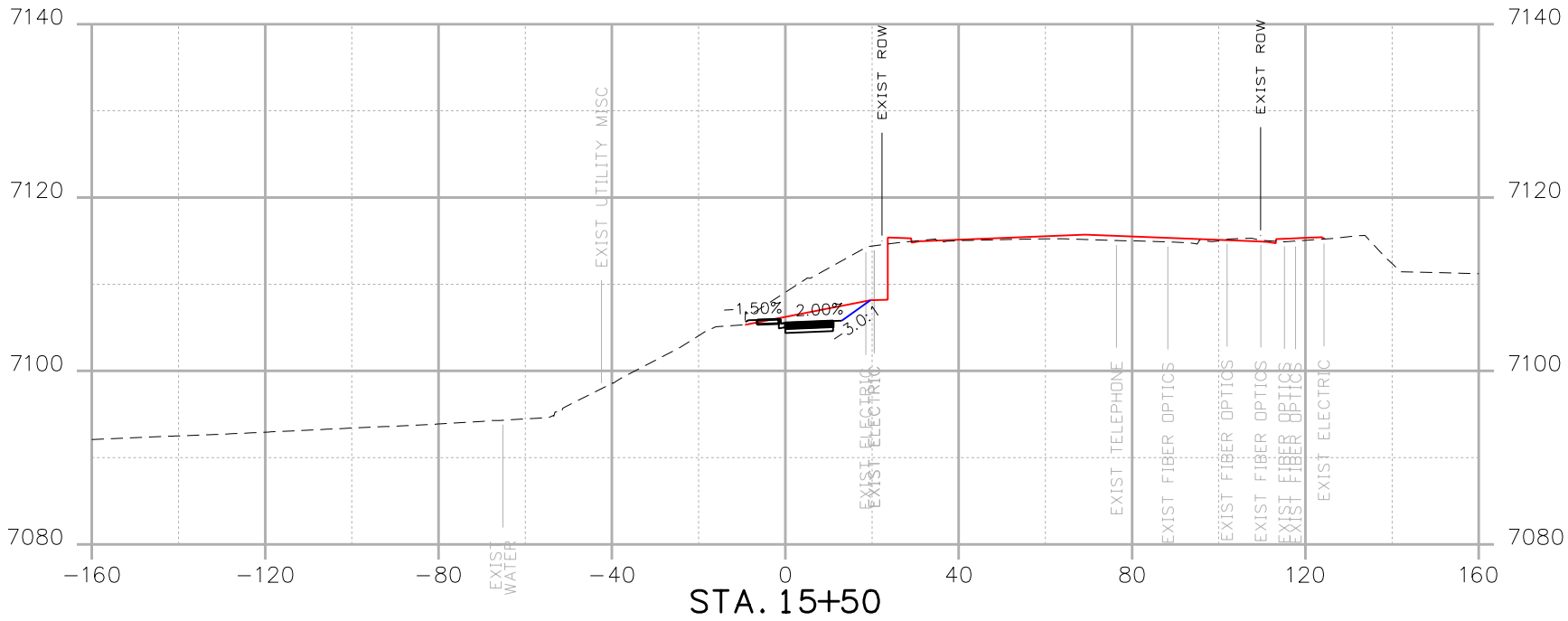
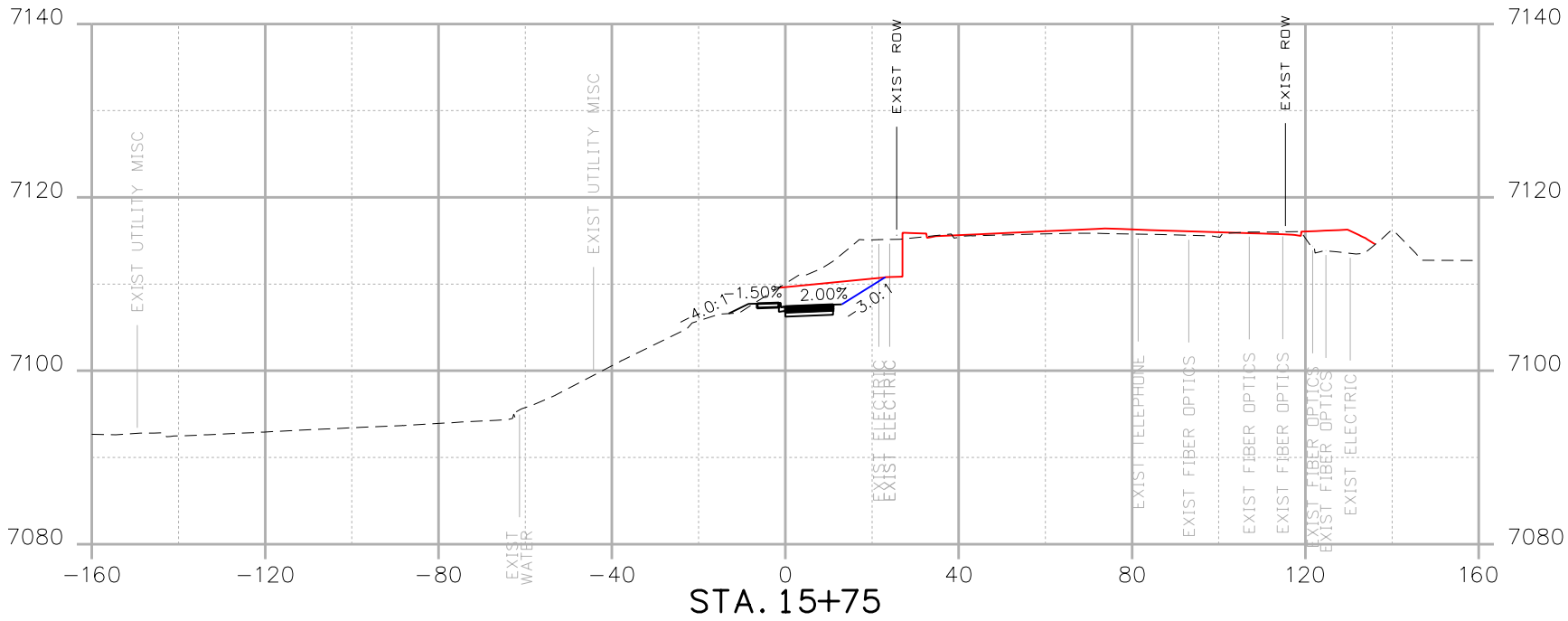


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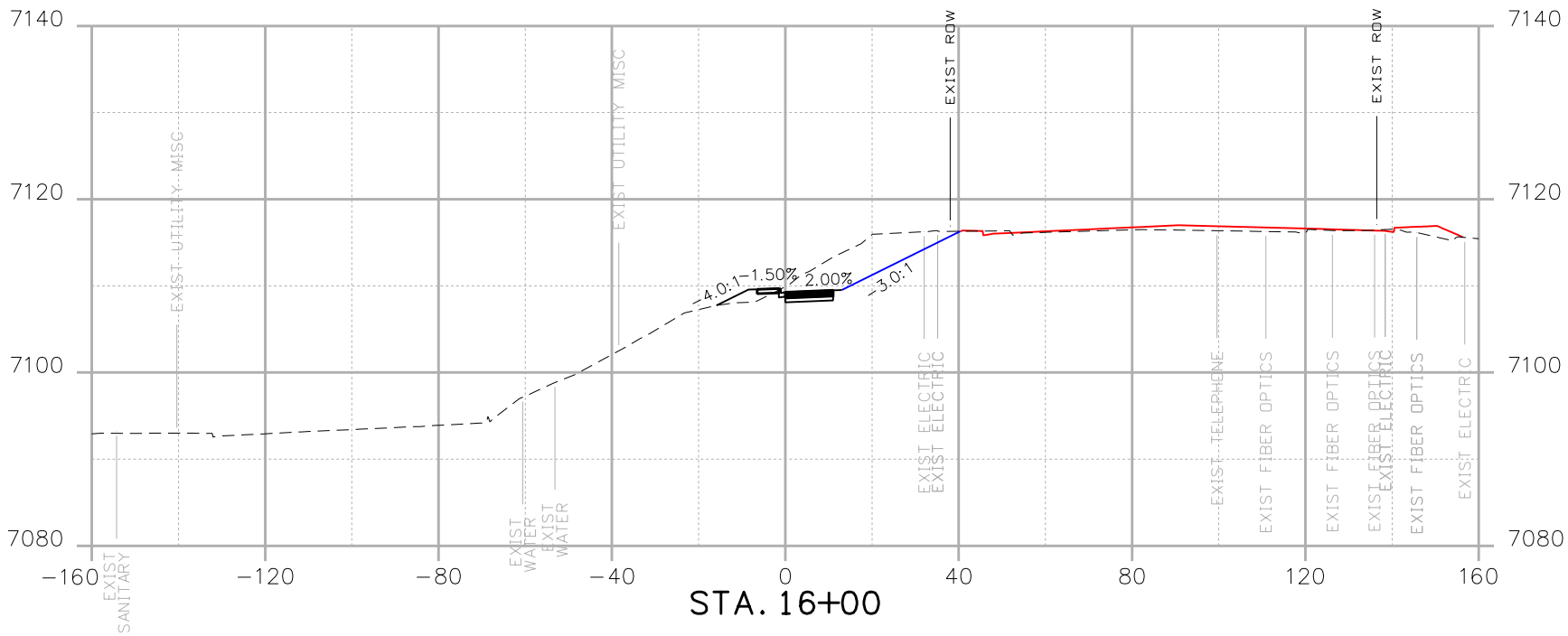
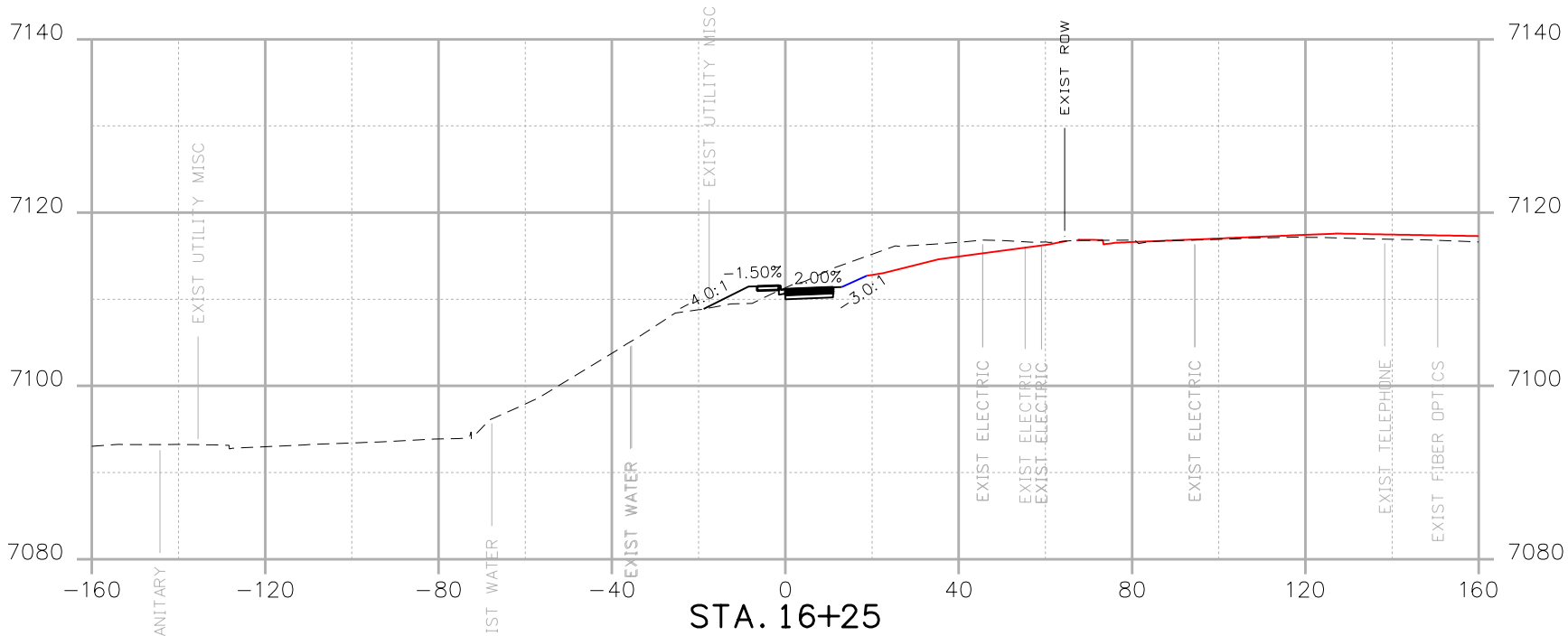
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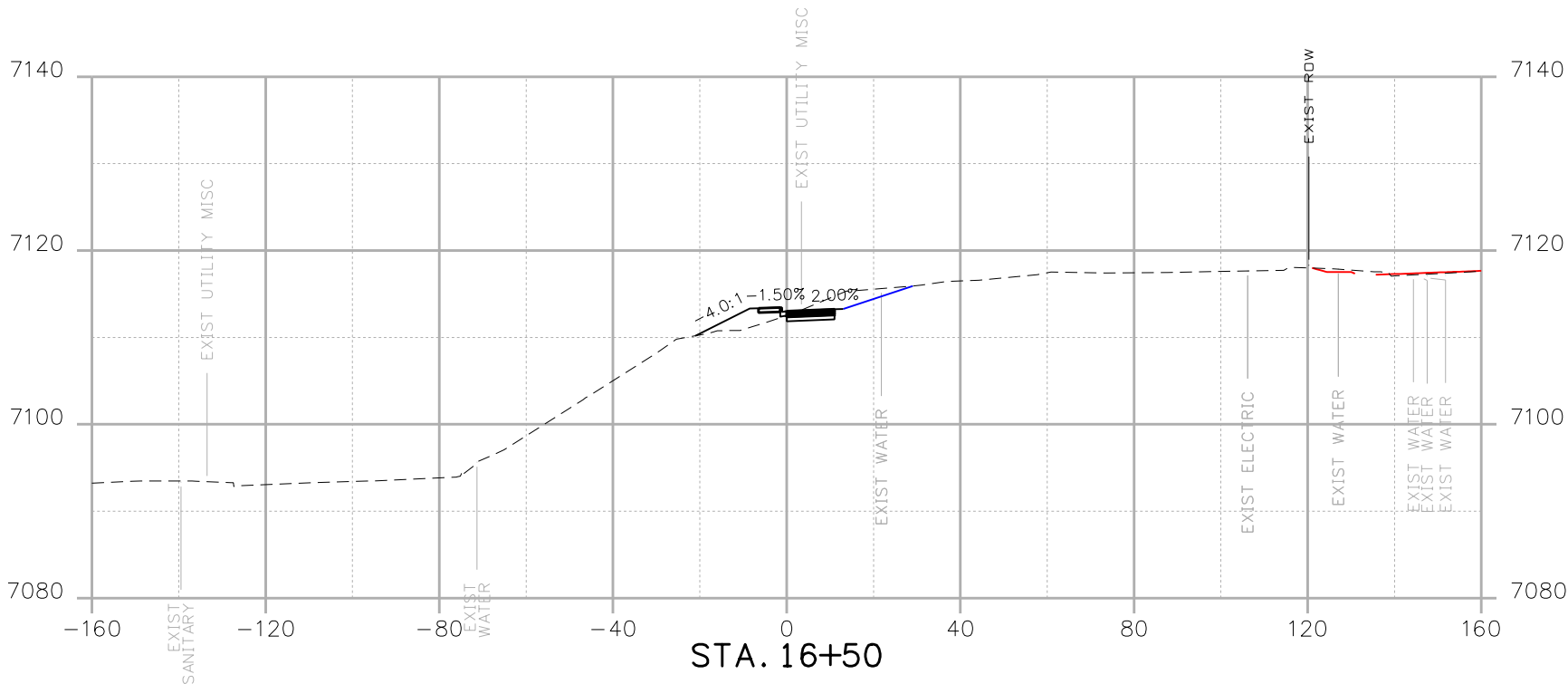
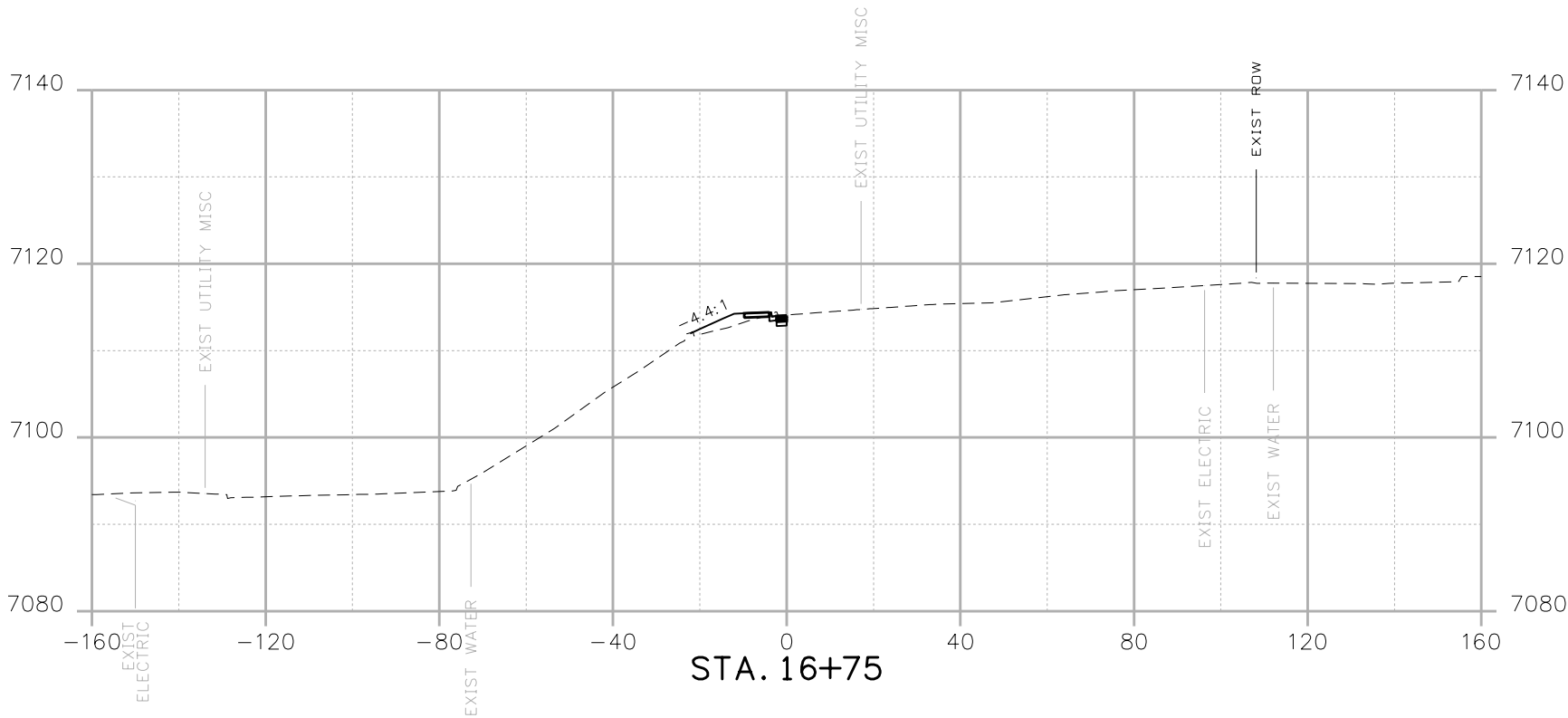
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As Constructed		CROSS SECTIONS FRONT OF SCHOOL ACCESS		Project No./Code
No Revisions:		Designer: J. WILKERT	Structure Numbers	
Revised:		Detailer: J. WILKERT		
Void:		Sheet Subset: F. CROSS SEC.	Subset Sheets: 13 of 14	Sheet Number CX 27 of 28

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LEGEND

- HWY 105 PROJECT (BY OTHERS)
- MONUMENT ACADEMY  
RECIRCULATION PLAN TIE-IN



Print Date: 4/14/2022
File Name: Monument_Academy_Cross Sections.dgn
Horiz. Scale: 1:40 Vert. Scale: None
<div><div><div></div><div></div><div></div><div></div></div><div>5555 TECH CENTER DRIVE, SUITE 310 COLORADO SPRINGS, CO 80919 PHONE: 719-272-8800</div></div>

Sheet Revisions		
Date:	Comments	Init.



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