

Oversight / NHS

FHWA REGION VIII OVERSIGHT?  NO  YES

NATIONAL HIGHWAY SYSTEM?  NO  YES

# DEPARTMENT OF TRANSPORTATION STATE OF COLORADO CONSTRUCTION BID PLANS

## FEDERAL AID PROJECT NO. STM 110-081 CITY OF BOULDER PROJECT NO. 41-2015

# WONDERLAND CREEK GREENWAYS IMPROVEMENT PROJECT

## WINDING TRAIL DRIVE TO FOOTHILLS PARKWAY (SH 157)

### CITY OF BOULDER, BOULDER COUNTY JUNE, 2015

## VOLUME 1 OF 2



Know what's below  
Call before you dig.

#### Related Projects:

P. E. UNDER PROJECT: \_\_\_\_\_  
Project Code: \_\_\_\_\_ 19748

#### R.O.W. Projects:

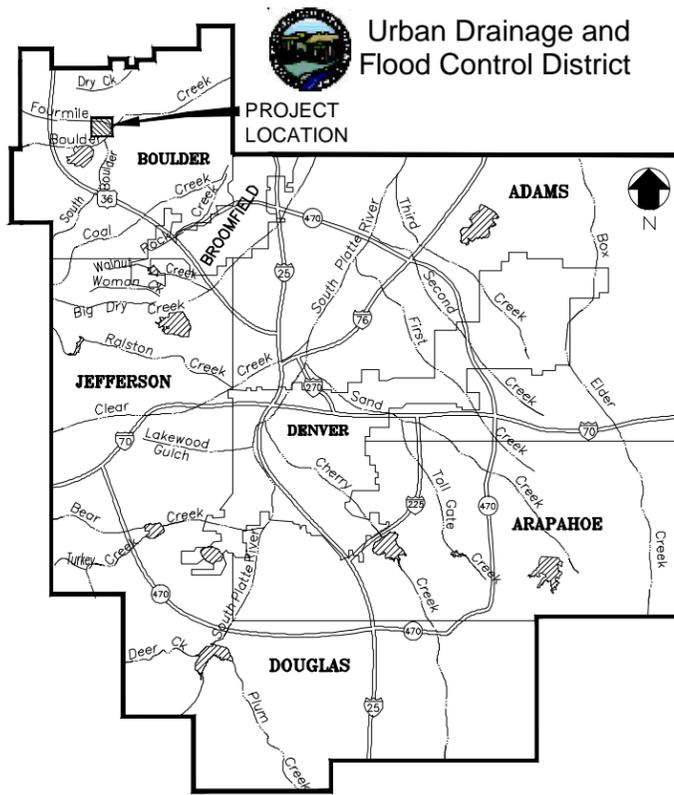
R.O.W. Project Description:  
STM M110-081 18405  
AQC M110-087 19748

#### Contract Information

Contractor: \_\_\_\_\_  
Resident Engineer: \_\_\_\_\_  
Project Engineer: \_\_\_\_\_  
PROJECT STARTED: \_\_\_/\_\_\_/\_\_\_ ACCEPTED: \_\_\_/\_\_\_/\_\_\_  
Comments: \_\_\_\_\_

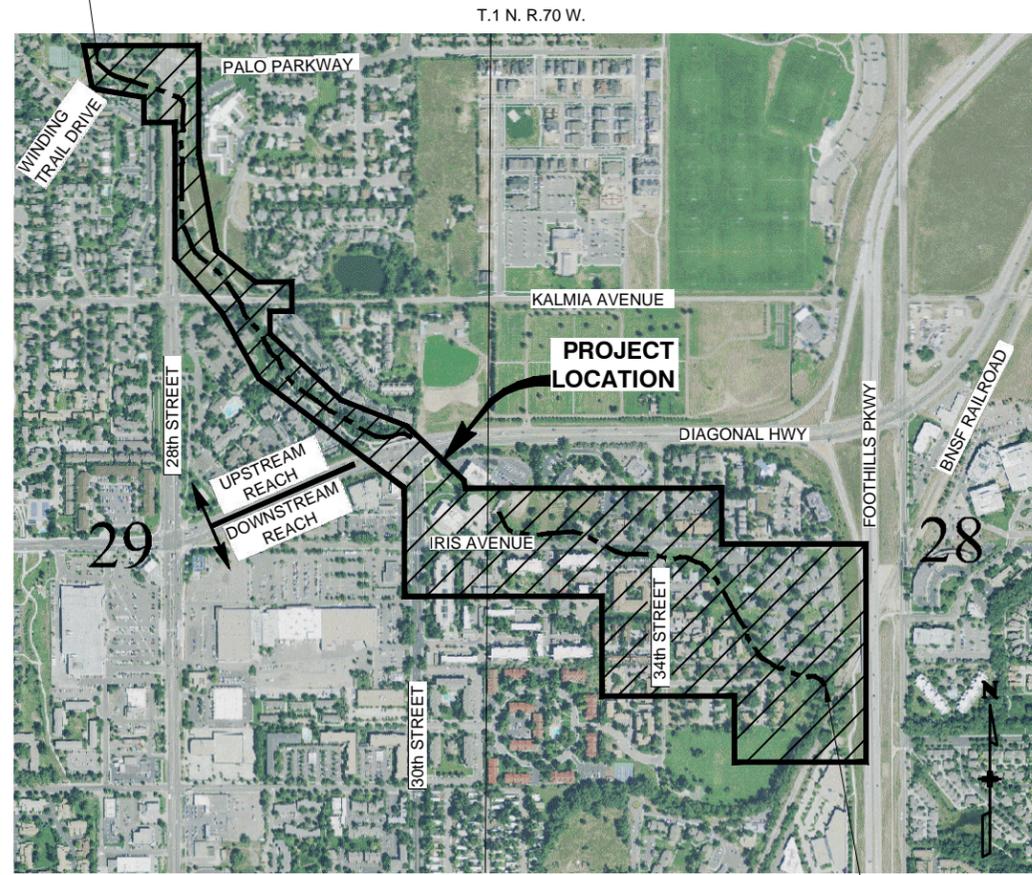
### FOR CONSTRUCTION

TABULATION OF LENGTH AND DESIGN DATA	
STATION	FEET CHANNEL
50+03.31 - BEGIN PROJECT	
72+40.00 - END D/S REACH	2236.69
200+00.00 - BEGIN U/S REACH	
230+20.00 - END PROJECT	3020
PROJECT LENGTH	5256.69
DESIGN DATA	
DESIGN STORM	100-YEAR
DESIGN FLOWS	2242 - 2189 CFS



VICINITY MAP  
NTS

END PROJECT  
STA. 230+20.00



PROJECT LOCATION MAP



- APPROVALS -

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

SUITE #156 B  
2480 W. 26TH AVE.  
DENVER, COLORADO 80211  
(303) 455-6277

PAUL A. HINDMAN, EXECUTIVE DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

DAVID BENNETTS, MANAGER -  
DESIGN, CONSTRUCTION, AND MAINTENANCE \_\_\_\_\_ DATE \_\_\_\_\_

DAVID SKUODAS, PROJECT ENGINEER -  
DESIGN, CONSTRUCTION AND MAINTENANCE \_\_\_\_\_ DATE \_\_\_\_\_

**City of Boulder**  
Public Works Department  
1739 Broadway  
Boulder, CO 80306

KURT BAUER, P.E. \_\_\_\_\_ DATE \_\_\_\_\_



**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
177 S. WADSWORTH BLVD., STE. 4-100  
LAKEWOOD, COLORADO 80226-1355  
(303) 988-4939

CHRISTOPHER L. KROEGER, PROJECT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

JAMES A. WATT III, P.E. (412806), PROJECT ENGINEER \_\_\_\_\_ DATE 6/18/15

THE PROJECT IS LOCATED WITHIN THE MAJOR DRAINAGEWAY PLANNING LIMITS SHOWN IN THE FOURMILE CANYON CREEK AND WONDERLAND CREEK MAJOR DRAINAGEWAY PLANNING FINAL PLAN (CITY OF BOULDER, MAY 2011)

BASIS OF ELEVATIONS: PROJECT ELEVATIONS ARE BASED ON BENCH MARK V 321 RESET, PID: LL1138, A STANDARD N.G.S. BENCH MARK DISK SET ON TOP OF A CONCRETE MONUMENT WITH A NAVD 88 ELEVATION OF 5296.81 FT. V 321 RESET IS A NATIONAL GEODETIC SURVEY (NGS) 2ND ORDER CLASS 1 BENCH MARK.

COORDINATE DATUM: PROJECT COORDINATES ARE MODIFIED COLORADO STATE PLANE NORTH ZONE NAD '83/(2007) COORDINATES. THE COMBINED ELEVATION/SCALE FACTOR USED TO MODIFY THE COORDINATES FROM STATE PLANE TO PROJECT COORDINATES IS 1.0002843248. THE RESULTING PROJECT COORDINATES ARE TRUNCATED BY 1,000,000' IN THE NORTHING AND 3,000,000' IN THE EASTING AFTER CONVERTING FROM STATE PLANE COORDINATES TO PROJECT COORDINATES. THE CHARN IS BASED ON THE NAD '83/(2007) DATUM.

#### Computer File Information

Creation Date: 07/18/13 Initials: JHK  
Last Modification Date: 6/18/15 Initials: JHK  
Full Path: P:\11-039.03\CAD  
Drawing File Name: 11-039.03\_COVER.dwg  
AutoCAD 2014 Scale: AS SHOWN

MULLER ENGINEERING CO., INC.

CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

MEC PROJECT NO. 11039.03



#### Sheet Revisions

Date	Comments	Init.

#### As Constructed

No Revisions:  
Revised:  
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

#### TITLE SHEET

Designer: CLK Structure  
Detailer: JHK Numbers  
Sheet Subset: GENERAL Subset Sheets: G-1

Project No./Code  
STM 110-081  
18405  
Sheet Number: 1

PLOTTED: 7/22/2015 12:18:35 PM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH-FINAL DESIGN\CAD\11-039.03\_COVER.DWG

**INDEX OF DRAWINGS (VOLUME 1)**

SHEET NO.	SUBSET ID	TITLE
<b>GENERAL</b>		
1	G-1	TITLE SHEET
2	G-2	INDEX OF DRAWINGS
3	G-3	CDOT STANDARDS PLANS LIST
4 - 5	G-4 to G-5	NOTES
6	G-6	SURVEY TABULATION
7 - 11	G-7 to G-11	SUMMARY OF APPROXIMATE QUANTITIES
12	G-12	SUMMARY OF EARTHWORK
13 - 15	G-13 to G-15	TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS
16	G-16	TABULATION OF SURFACING QUANTITIES
17 - 19	G-17 to G-19	TABULATION OF CONCRETE SURFACING QUANTITIES
20	G-20	TABULATION OF CONCRETE STRUCTURE QUANTITIES
21	G-21	TABULATION OF CONCRETE WALL QUANTITIES
22	G-22	TABULATION OF DRAINAGE REMOVAL QUANTITIES
23 - 25	G-23 to G-25	TABULATION OF DRAINAGE STRUCTURE QUANTITIES
26 - 28	G-26 to G-28	TABULATION OF UTILITY QUANTITIES
29 - 30	G-29 to G-30	TABULATION OF MISCELLANEOUS QUANTITIES
<b>STORMWATER MANAGEMENT</b>		
31 - 35	SM-1 to SM-5	STORMWATER MANAGEMENT PLAN GENERAL NOTES
36 - 49	SM-6 to SM-19	STORMWATER MANAGEMENT PLANS - INITIAL
50 - 63	SM-20 to SM-33	STORMWATER MANAGEMENT PLANS - INTERIM
64 - 77	SM-34 to SM-47	STORMWATER MANAGEMENT PLANS - FINAL
78 - 80	SM-48 to SM-50	STORMWATER MANAGEMENT DETAILS
<b>DEMOLITION</b>		
81 - 94	DM-1 to DM-14	DEMOLITION AND REMOVAL PLAN
<b>WONDERLAND CREEK DRAINAGEWAY IMPROVEMENTS</b>		
95 - 108	MD-1 to MD-14	DRAINAGEWAY IMPROVEMENTS PLAN
109 - 127	WC-1 to WC-19	WONDERLAND CREEK PLAN AND PROFILE
<b>CDOT STRUCTURE D-16-DD IMPROVEMENTS</b>		
128 - 129	RP-1 to RP-2	RESTRICTOR PLATE MODIFICATIONS TO D-16-DD
<b>BNSF BRIDGE RELATED IMPROVEMENTS (CDOT STR. 0476-31.85)</b>		
130	BNSF-1	BNSF BRIDGE PLAN AND PROFILE
131	BNSF-2	BNSF TRAIL CANOPY PLAN AND PROFILE
132 - 134	BNSF-3 to BNSF-5	BNSF TRAIL CANOPY DETAILS
<b>WONDERLAND CREEK SPILLWAY IMPROVEMENTS</b>		
135	SP-1	WONDERLAND CREEK SPILLWAY PLAN
136	SP-2	SPILLWAY WALL LAYOUT
137 - 138	SP-3 to SP-4	SPILLWAY DETAILS
<b>SPRING CREEK PLACE CULVERT IMPROVEMENTS</b>		
139	SPC-1	SPRING CREEK PLACE CULVERT GENERAL INFORMATION
140	SPC-2	SPRING CREEK PLACE CULVERT PLAN
141	SPC-3	SPRING CREEK PLACE CULVERT SECTIONS
142	SPC-4	SPRING CREEK PLACE CULVERT TOP AND BOTTOM SLAB REINF. PLAN
143	SPC-5	SPRING CREEK PLACE CULVERT DETAILS
144	SPC-6	SPRING CREEK PLACE CULVERT HEADWALL REINF. PLAN
145	SPC-7	SPRING CREEK PLACE CULVERT RAILING LAYOUT PLAN
146	SPC-8	SPRING CREEK PLACE CULVERT SURFACE TREATMENT PLAN AND DETAILS
<b>IRIS BOX CULVERT IMPROVEMENTS</b>		
147	IBC-1	IRIS BOX CULVERT GENERAL INFORMATION
148 - 149	IBC-2 to IBC-3	IRIS BOX CULVERT PLAN AND PROFILE
150	IBC-4	IRIS BOX CULVERT INLET & OUTLET PLANS
151	IBC-5	IRIS BOX CULVERT INLET DETAILS
152	IBC-6	IRIS BOX CULVERT OUTLET DETAILS
153	IBC-7	IRIS BOX CULVERT DETAILS
<b>KALMIA PEDESTRIAN BRIDGE IMPROVEMENTS</b>		
154	KP-1	KALMIA PEDESTRIAN BRIDGE GENERAL INFORMATION
155 - 158	KP-2 to KP-5	KALMIA PEDESTRIAN BRIDGE DETAILS
<b>KALMIA AVE. BOX CULVERT IMPROVEMENTS</b>		
159	KA-1	KALMIA AVE. BOX CULVERT GENERAL INFORMATION
160	KA-2	KALMIA AVE. BOX CULVERT PLAN
161	KA-3	KALMIA AVE. BOX CULVERT DETAILS
<b>28TH STREET CULVERT IMPROVEMENTS (CDOT STR D-15-BR)</b>		
162	28TH-1	28TH STREET CULVERT GENERAL INFORMATION
163	28TH-2	28TH STREET CULVERT PLAN
164 - 168	28TH-3 to 28TH-7	28TH STREET CULVERT DETAILS

SHEET NO.	SUBSET ID	TITLE
<b>WINDING TRAIL PEDESTRIAN CROSSING IMPROVEMENTS</b>		
169	WT-1	WINDING TRAIL PEDESTRIAN CROSSING GENERAL INFORMATION
170	WT-2	WINDING TRAIL PEDESTRIAN CROSSING PLAN
171 - 172	WT-3 to WT-4	WINDING TRAIL PEDESTRIAN CROSSING DETAILS
<b>WINDING TRAIL CULVERT IMPROVEMENTS</b>		
173	WTC-1	WINDING TRAIL CULVERT GENERAL INFORMATION
174	WTC-2	WINDING TRAIL CULVERT PLAN
175	WTC-3	WINDING TRAIL CULVERT DETAILS
<b>GRADE CONTROL STRUCTURE IMPROVEMENTS</b>		
176	GSC-1	GRADE CONTROL STRUCTURES #1 AND #2 DETAILS
177	GSC-2	GRADE CONTROL STRUCTURE #3 DETAILS
178	GSC-3	GRADE CONTROL STRUCTURES #4 AND #5 DETAILS
179	GSC-4	GRADE CONTROL STRUCTURE #6 DETAILS
180	GSC-5	GRADE CONTROL STRUCTURES #7 AND #8 DETAILS
181	GSC-6	GRADE CONTROL STRUCTURES #9 AND #10 DETAILS
182	GSC-7	GRADE CONTROL STRUCTURE #11 DETAILS
183	GSC-8	GRADE CONTROL STRUCTURES #12 AND #13 DETAILS
184	GSC-9	GRADE CONTROL STRUCTURES #14 AND #15 DETAILS
185	GSC-10	GRADE CONTROL STRUCTURES #16 AND #17 DETAILS
<b>WATER QUALITY IMPROVEMENTS</b>		
186 - 187	WQ-1 to WQ-2	WATER QUALITY TREATMENT PLAN
188	WQ-3	WATER QUALITY TREATMENT DETAILS
<b>UTILITY IMPROVEMENTS</b>		
189	WL-1	WATER LINE 1 PLAN & PROFILE
190	WL-2	WATER LINE 2 PLAN & PROFILE
191	WL-3	WATER LINE 3 PLAN & PROFILE
192	WL-4	WATER LINE 3.1 & 3.2 PLAN & PROFILES
193	WL-5	WATER LINE 4 PLAN & PROFILE
194	WL-6	WATER LINE 4.1 PLAN & PROFILES
195	WL-7	WATER LINE 5 PLAN & PROFILE
196	WL-8	WATER LINE 6 PLAN
197	WL-9	WATER LINE 7 PLAN & PROFILE
198	WL-10	WATER LINE MISCELLANEOUS
199 - 200	SS-1 to SS-2	SANITARY SEWER PROFILES
201 - 207	ST-1 to ST-7	STORM SEWER PROFILES
208 - 211	ST-8 to ST-11	STORM SEWER OUTFALL DETAILS
212	ST-12	MODIFIED TYPE C INLET DETAIL

**INDEX OF DRAWINGS (VOLUME 2)**

SHEET NO.	SUBSET ID	TITLE
<b>GENERAL</b>		
213	G-1A	TITLE SHEET
<b>WONDERLAND CREEK TRAIL AND WALL IMPROVEMENTS</b>		
214 - 215	TW-1 to TW-2	TRAIL HORIZONTAL CONTROL TABLES
216 - 217	TW-3 to TW-4	WALL HORIZONTAL CONTROL TABLES
218 - 230	TW-5 to TW-17	TRAIL AND WALL GEOMETRY PLAN
231 - 239	TW-18 to TW-26	TRAIL PROFILES
240 - 241	TW-27 to TW-28	TRAIL DETAILS
242	TW-29	WALL GENERAL INFORMATION
243 - 244	TW-30 to TW-31	WALL 1 PLAN & PROFILE (1 - 2)
245	TW-32	WALLS 2 & 3 PLAN & PROFILE
246	TW-33	WALLS 4 & 5 PLAN & PROFILE
247 - 248	TW-34 to TW-35	WALL 7 PLAN & PROFILE (1 - 2)
249 - 250	TW-36 to TW-37	WALL 8 PLAN & PROFILE (1 - 2)
251	TW-38	WALLS 9 & 10 PLAN & PROFILE
252	TW-39	WALL 11 PLAN & PROFILE
253	TW-40	WALL 12 PLAN & PROFILE
254	TW-41	WALL 13 PLAN & PROFILE
255 - 258	TW-42 to TW-45	WALL 14 PLAN & PROFILE (1 - 4)
259 - 260	TW-46 to TW-47	WALL 15 PLAN & PROFILE (1 - 2)
261	TW-48	WALL 16 PLAN & PROFILE
262	TW-49	WALL 17 PLAN & PROFILE
263	TW-50	WALL 18 & 19 PLAN & PROFILE
264	TW-51	WALL 20 PLAN & PROFILE
265	TW-52	WALL 21 PLAN & PROFILE
266 - 268	TW-53 to TW-55	WALL 22 PLAN & PROFILE (1 - 3)
269 - 270	TW-56 to TW-57	WALL 23 PLAN & PROFILE (1 - 2) CDOT STR. D-15-BR

SHEET NO.	SUBSET ID	TITLE
<b>WONDERLAND CREEK TRAIL AND WALL IMPROVEMENTS (CONT.)</b>		
271	TW-58	WALL 24 PLAN & PROFILE CDOT STR. D-15-BR
272	TW-59	WALL 25 PLAN & PROFILE CDOT STR. D-15-BR
273	TW-60	WALL 26 PLAN & PROFILE
274 - 275	TW-61 to TW-62	WALL 27 PLAN & PROFILE (1 - 2)
276	TW-63	WALL 28 PLAN & PROFILE
277	TW-64	WALL 29 PLAN & PROFILE
278	TW-65	WALL 30 PLAN & PROFILE
279	TW-66	WALL 31 PLAN & PROFILE
280	TW-67	WALL 32 & 33 PLAN & PROFILE
281	TW-68	WALL 34, 35 & 36 PLAN & PROFILE
282	TW-69	WALL NON-TYPICAL SECTIONS
283 - 288	TW-70 to TW-75	WALL DETAILS (1 - 6)
<b>HAYDEN PLACE PARKING LOT IMPROVEMENTS</b>		
289	PL-1	PARKING LOT PLAN
<b>ROADWAY IMPROVEMENTS</b>		
290	R-1	TYPICAL ROADWAY SECTIONS
291	R-2	IRIS AVE ROADWAY AND PROFILE STA 23+00 TO 28+50
292	R-3	IRIS AVE ROADWAY AND PROFILE STA 28+50 TO 34+00
293	R-4	IRIS AVE- 34TH STREET ROADWAY INTERSECTION DETAIL
294	R-5	DRIVEWAY PLAN DETAILS
295	R-6	DRIVEWAY PROFILES
296 - 304	R-7 to R-15	CROSS SECTIONS
305	R-16	CONSTRUCTION TRAFFIC CONTROL NOTES
306	R-17	TABULATION OF TEMPORARY TRAFFIC ENGINEERING ITEMS
307	R-18	IRIS AVE. TRAFFIC DETOUR PHASING PLAN
308	R-19	IRIS AVE. INTERSECTION PHASING DETAIL
309	R-20	KALMIA AVE. TRAFFIC DETOUR PLAN
310	R-21	WINDING TRAIL DRIVE CONSTRUCTION TRAFFIC PHASING
311	R-22	28TH STREET CONSTRUCTION TRAFFIC PHASING
<b>BOULDER WHITE ROCK DITCH IMPROVEMENTS</b>		
312 - 314	BWRD-1 to BWRD-3	BWRD PLAN AND PROFILE
315 - 316	BWRD-4 to BWRD-5	BWRD DETAILS
317	BWRD-6	BWRD TURNOUT STRUCTURE GENERAL INFORMATION
318 - 324	BWRD-7 to BWRD-13	BWRD TURNOUT STRUCTURE DETAILS
325	BWRD-14	BWRD PEDESTRIAN CROSSING GENERAL INFORMATION
326	BWRD-15	BWRD PEDESTRIAN CROSSING PLAN
327 - 331	BWRD-16 to BWRD-20	BWRD PEDESTRIAN CROSSING DETAILS (1 - 5)
<b>MISCELLANEOUS DETAILS</b>		
332-335	M-1 to M-4	MISCELLANEOUS DETAILS
<b>LANDSCAPE PLANS</b>		
336 - 349	L-1 to L-14	PLANTING PLAN
350 - 363	L-15 to L-28	WETLANDS, SEED, AND SOD PLAN
364	L29	LANDSCAPE DETAILS
<b>SITE FURNISHINGS</b>		
365 - 369	SF-1 to SF-5	WALL AND TRELLIS PLAN
370 - 372	SF-6 to SF-8	WALL AND TRELLIS ELEVATIONS
373 - 383	SF-9 to SF-19	RAILING PLAN
384	SF-20	BIKE RACK PLAN
385 - 386	SF-21 to SF-22	TRAIL SIGN PLAN
<b>IRRIGATION PLANS</b>		
387 - 400	IR-1 to IR-14	SPRAY IRRIGATION LAYOUT PLAN
401 - 414	IR-15 to IR-28	DRIP IRRIGATION LAYOUT PLAN
415 - 416	IR-29 to IR-30	IRRIGATION LEGEND AND NOTES
417 - 420	IR-31 to IR-34	IRRIGATION DETAILS
<b>LIGHTING PLANS</b>		
421 - 437	LEP-0 to LEP-16	LIGHTING IMPROVEMENT PLANS
<b>CITY OF BOULDER DETAILS</b>		
438 - 443	B-1 to B-6	BOULDER STANDARD DETAILS
<b>RIGHT OF WAY PLANS</b>		
1.01 - 8.01	(22 SHEETS)	PROPOSED PROJECT NO. STM M110-081
1.01 - 8.01	(18 SHEETS)	PROPOSED PROJECT NO. AQC M110-087

\* THE PLANS DO NOT INCLUDE A WALL 6 PLAN AND PROFILE



Know what's below  
Call before you dig.

PLOTTED: 6/19/2015 10:11:45 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_GEN.DWG

Computer File Information	
Creation Date: 07/18/13	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_GEN.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

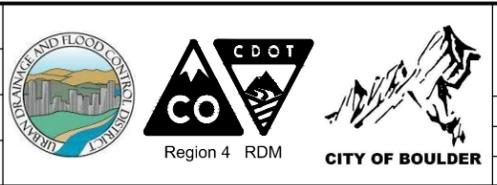
**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		
<b>INDEX OF DRAWINGS</b>		
Designer:	CLK	Structure
Detailer:	JHK	Numbers
Sheet Subset:	GENERAL	Subset Sheets: G-2

Project No./Code
STM 110-081
18405
Sheet Number: 2

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	S STANDARD TITLE	PAGE NUMBER
M-100-1		STANDARD SYMBOLS (3 SHEETS)	1-3	M-607-1		WIRE FENCES AND GATES (3 SHEETS)	100-102	S-612-1		DELINEATOR INSTALLATIONS (7 SHEETS)	151-157
M-100-2		ACRONYMS AND ABBREVIATIONS (4 SHEETS)	4-7	M-607-2		CHAIN LINK FENCE (3 SHEETS)	103-105	S-614-1	■	GROUND SIGN PLACEMENT (2 SHEETS) (REVISED ON MARCH 07, 2014)	158-159
M-203-1	□	APPROACH ROADS (REVISED ON JULY 08, 2013)	8	M-607-3		BARRIER FENCE	106	S-614-2		CLASS I SIGNS	160
M-203-2		DITCH TYPES	9	M-607-4		DEER FENCE AND GATES (3 SHEETS)	107-109	S-614-3		CLASS II SIGNS	161
M-203-11		SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)	10-12	M-607-10		PICKET SNOW FENCE	110	S-614-4		CLASS III SIGNS (3 SHEETS)	162-164
M-203-12		SUPERELEVATION STREETS (2 SHEETS)	13-14	M-607-15		ROAD CLOSURE GATE (9 SHEETS)	111-119	S-614-5		BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)	165-166
M-206-1		EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	15-16	M-608-1	■	CURB RAMPS (7 SHEETS) (REVISED ON JUNE 16, 2014)	120-125	S-614-6	□	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS) (REVISED ON SEPTEMBER 16, 2013)	167-168
M-206-2		EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)	17-18	M-609-1	■	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012)	126-129	S-614-8	□	TUBULAR STEEL SIGN SUPPORT DETAILS (5 SHEETS) (REVISED ON MARCH 05, 2013)	169-173
M-208-1		TEMPORARY EROSION CONTROL (12 SHEETS)	19-30	M-611-1		CATTLE GUARD (2 SHEETS)	130-131	S-614-9		PEDESTRIAN PUSH BUTTON POST ASSEMBLY	174
M-210-1		MAILBOX SUPPORTS (2 SHEETS)	31-32	M-613-1		ROADWAY LIGHTING (4 SHEETS)	132-135	S-614-10		MARKER ASSEMBLY INSTALLATIONS	175
M-214-1		PLANTING DETAILS	33	M-614-1		RUMBLE STRIPS (3 SHEETS)	136-138	S-614-11		MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS	176
M-412-1	■	CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012)	34-38	M-614-2		SAND BARREL ARRAYS (2 SHEETS)	139-140	S-614-12		STRUCTURE NUMBER INSTALLATION	177
M-510-1		STRUCTURAL PLATE PIPE H-20 LOADING	39	M-615-1		EMBANKMENT PROTECTOR TYPE 3	141	S-614-14		FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS)	178-180
M-601-1	■	SINGLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON AUGUST 27, 2013)	40-41	M-615-2		EMBANKMENT PROTECTOR TYPE 5	142	S-614-20		TYPICAL POLE MOUNT SIGN INSTALLATIONS	181
M-601-2	■	DOUBLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON AUGUST 27, 2013)	42-43	M-616-1		INVERTED SIPHON	143	S-614-21		CONCRETE BARRIER SIGN POST INSTALLATIONS	182
M-601-3	■	TRIPLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON AUGUST 27, 2013)	44-45	M-620-1		FIELD LABORATORY CLASS 1	144	S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS	183
M-601-10		HEADWALL FOR PIPES	46	M-620-2		FIELD LABORATORY CLASS 2 (2 SHEETS)	145-146	S-614-40		TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS)	184-188
M-601-11		TYPE "S" SADDLE HEADWALLS FOR PIPE	47	M-620-11		FIELD OFFICE CLASS 1	147	S-614-40A	□	ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS (4 SHEETS) (REVISED ON SEPTEMBER 23, 2012)	189-192
M-601-12		HEADWALLS AND PIPE OUTLET PAVING	48	M-620-12		FIELD OFFICE CLASS 2	148	S-614-41		PEDESTAL POLE AND TEMPORARY SPAN WIRE SIGNALS	193
M-601-20		WINGWALLS FOR PIPE OR BOX CULVERTS	49	M-629-1		SURVEY MONUMENTS (2 SHEETS)	149-150	S-614-42		CABINET FOUNDATION DETAIL (4 SHEETS)	194-197
M-603-1		METAL PIPE (4 SHEETS)	50-53					S-614-43		TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS (10 SHEETS)	198-207
M-603-2		REINFORCED CONCRETE PIPE	54					S-614-50	□	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS) (REVISED ON NOVEMBER 28, 2012)	208-219
M-603-3		PRECAST CONCRETE BOX CULVERT	55					S-614-60	□	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS) (REVISED ON NOVEMBER 28, 2012)	220-233
M-603-4		CORRUGATED POLYETHYLENE PIPE (AASHTO M294)	56					S-627-1	■	PAVEMENT MARKINGS (5 SHEETS) (REVISED ON JUNE 10, 2014)	234-238
M-603-5		POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304)	57					S-630-1	■	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (20 SHEETS) (REVISED ON JULY 22, 2014)	239-258
M-603-10		CONCRETE AND METAL END SECTIONS (2 SHEETS)	58-59					S-630-2		BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS	259
M-604-10		INLET, TYPE C	60					S-630-3		FLASHING BEACON (PORTABLE) DETAILS	260
M-604-11		INLET, TYPE D	61					S-630-4		STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DETAILS (2 SHEETS)	261-262
M-604-12		CURB INLET TYPE R (2 SHEETS)	62-63					S-630-5	□	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS) (REVISED ON JULY 26, 2013)	263-264
M-604-13		CONCRETE INLET TYPE 13	64					S-630-6		EMERGENCY PULL-OFF AREA (TEMPORARY)	265
M-604-20		MANHOLES (3 SHEETS)	65-67					S-630-7		ROLLING ROADBLOCKS FOR TRAFFIC CONTROL (3 SHEETS)	266-268
M-604-25		VANE GRATE INLET (5 SHEETS)	68-72								
M-605-1		SUBSURFACE DRAINS	73								
M-606-1		GUARDRAIL TYPE 3 W-BEAM (19 SHEETS)	74-92								
M-606-13	□	GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS) (REVISED ON AUGUST 30, 2013)	93-96								
M-606-14		PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS)	97-99								

COLORADO  
 DEPARTMENT OF TRANSPORTATION  
**M&S STANDARDS PLANS LIST**  
 July 04, 2012  
 Revised on July 22, 2014

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

NEW OR REVISED STANDARD PLAN SHEETS APPLICABLE TO THIS PROJECT, INDICATED BY A MARKED BOX , WILL BE ATTACHED TO THE PLANS.

PLOTTED: 6/19/2015 10:12:01 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_CDOT STD LIST.DWG

<b>Computer File Information</b> Creation Date: 03/06/15 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_CDOT STD LIST.dwg AutoCAD 2010 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>			Date:	Comments	Init.																<b>As Constructed</b> No Revisions: Revised: Void:		  		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>CDOT STANDARDS PLANS LIST</b> Designer: CLK Structure Numbers Detailer: JHK Sheet Subset: GENERAL Subset Sheets: G-3		Project No./Code <b>STM 110-081</b> <b>18405</b> Sheet Number: <b>3</b>	
Date:	Comments	Init.																																

**CITY OF BOULDER GENERAL NOTES:**

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE "DESIGN AND CONSTRUCTION STANDARDS" OF THE CITY OF BOULDER, AND SHALL BE COMPLETED TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC WORKS. IN THE EVENT THAT A DESIGN ELEMENT DOES NOT REFLECT CITY STANDARDS, THE MATTER MUST BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER AND THE DIRECTOR OF PUBLIC WORKS. THE ENGINEER SHALL BE RESPONSIBLE FOR RECOMMENDING A SOLUTION OR ALTERNATIVE SOLUTIONS TO THE CITY FOR REVIEW AND APPROVAL.
- THE APPROVAL OF A CONSTRUCTION PLAN DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF CONSTRUCTING WORKABLE PUBLIC IMPROVEMENTS. ALL REVISIONS AND/OR CORRECTIONS REQUIRED WILL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY, AND AT THEIR EXPENSE.
- THESE PLANS HAVE BEEN CHECKED BY THE CITY OF BOULDER ONLY FOR CONFORMANCE WITH THE "DESIGN AND CONSTRUCTION STANDARDS," COMPLIANCE WITH DEVELOPMENT AGREEMENT CONDITIONS, AND FOR GENERAL CONCEPTUAL APPROVAL OF PUBLIC IMPROVEMENTS AS SHOWN. THE CITY'S REVIEW DOES NOT VERIFY OR ENSURE THE ACCURACY OF EXISTING OR PROPOSED DIMENSIONS, LINES, COORDINATES, OR GRADES SHOWN, INCLUDING ALL EXISTING UTILITIES SHOWN OR NOT SHOWN.
- UTILITY LOCATIONS SHOWN REFLECT AVAILABLE RECORD DATA. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITY LINES SHOWN AND OTHER UTILITY LINES OTHERWISE LOCATED. THE CONTRACTOR SHALL CONTACT THE "UTILITY NOTIFICATION CENTER OF COLORADO" AT 1-800-922-1987 FOR UTILITY LOCATES 72 HOURS PRIOR TO BEGINNING CONSTRUCTION.
- BEFORE WORK BEGINS, THE CONTRACTOR SHALL OBTAIN A PERMIT TO WORK IN THE RIGHT-OF-WAY FROM THE CITY AND MUST NOTIFY THE CITY RIGHT-OF-WAY INSPECTION STAFF AT LEAST 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL OBTAIN AND MAINTAIN A COMPLETE AND APPROVED SET OF CONSTRUCTION PLANS. THESE DRAWINGS, AND ANY REQUIRED PERMITS, SHALL BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE TO CITY STAFF UPON REQUEST. IF CONSTRUCTION PLANS ARE NOT READILY AVAILABLE AT THE PROJECT SITE, THE DIRECTOR OF PUBLIC WORKS MAY ISSUE A STOP WORK ORDER AND HALT ALL CONSTRUCTION ACTIVITIES PENDING COMPLIANCE BY THE CONTRACTOR.
- THE CONTRACTOR AGREES TO COMPLY WITH THE PROVISIONS OF THE TRAFFIC CONTROL PLAN AND THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," "TEMPORARY TRAFFIC CONTROL" SECTION, FOR CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL.
- ALL SURPLUS MATERIALS, TOOLS, AND TEMPORARY STRUCTURES, FURNISHED BY THE CONTRACTOR, SHALL BE REMOVED FROM THE PROJECT SITE BY THE CONTRACTOR. ALL DEBRIS AND RUBBISH CAUSED BY THE OPERATIONS OF THE CONTRACTOR SHALL BE REMOVED, AND THE AREA OCCUPIED DURING CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ITS ORIGINAL CONDITION, WITHIN 48 HOURS OF PROJECT COMPLETION, UNLESS OTHERWISE DIRECTED BY THE DIRECTOR OF PUBLIC WORKS. DEBRIS AND RUBBISH WILL BE THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL DEBRIS AND RUBBISH.
- THE CONTRACTOR SHALL PROVIDE TREE AND LANDSCAPE PROTECTION AS SET FORTH IN CHAPTER 6-6, "PROTECTION OF TREES AND PLANTS," BOULDER REVISED CODE (B.R.C.) 1981 AND THE CITY OF BOULDER DESIGN AND CONSTRUCTION STANDARDS (DCS). ALL LANDSCAPING SHALL BE PROVIDED AND MAINTAINED IN COMPLIANCE WITH THE APPROVED LANDSCAPING PLAN, B.R.C. AND DCS.
- THERE ARE CURRENTLY STATE AND FEDERAL QUARANTINES IN PLACE FOR BOULDER COUNTY RESTRICTING THE MOVEMENT OF DECIDUOUS WOODY DEBRIS (LOGS, MULCH, FIREWOOD, ETC) TO PREVENT THE SPREAD OF EMERALD ASH BORER (EAB). ALL WOOD FROM DECIDUOUS TREE REMOVALS MUST STAY WITHIN THE QUARANTINE AREA OR MEET QUARANTINE RESTRICTIONS PER COMPLIANCE AGREEMENTS. INFORMATION ON THE QUARANTINE, INCLUDING A MAP OF THE QUARANTINE AREA, CAN BE FOUND AT [WWW.EABCOLORADO.COM](http://WWW.EABCOLORADO.COM). THE QUARANTINE AREA INCLUDES THE PORTIONS OF JEFFERSON AND WELD COUNTIES WITH LANDFILLS TO FACILITATE THE MOVEMENT OF DEBRIS TO THE LANDFILLS.
- THE CONTRACTOR IS REQUIRED TO PROVIDE AND MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT "URBAN STORM DRAINAGE CRITERIA MANUAL VOLUME 3", THE M-STANDARD PLANS OF THE COLORADO DEPARTMENT OF TRANSPORTATION, AND THE APPROVED EROSION CONTROL PLAN. THE DIRECTOR OF PUBLIC WORKS MAY REQUIRE THE CONTRACTOR TO PROVIDE ADDITIONAL EROSION CONTROL MEASURES DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE PLANS DO NOT FUNCTION AS INTENDED.
- ALL PERMANENT SIGNS INDICATED IN THE PLANS TO BE REMOVED AND OR RELOCATED IN THE PLAN SET SHALL BE REMOVED BY THE CONTRACTOR AND DELIVERED TO THE CITY OF BOULDER SIGN SHOP. THE CITY OF BOULDER SHALL PROVIDE ALL FINAL STREET, PATH, AND FLOOD SIGNAGE. PLEASE CONTACT SCOTT BAKER WITH THE CITY OF BOULDER SIGN SHOP AT 303-413-7122 ONE MONTH PRIOR TO OPENING A PATH OR ROADWAY SECTION TO COORDINATE SIGN INSTALLATION.

**GENERAL NOTES:**

- THIS PROJECT REQUIRES STRICT COMPLIANCE WITH CDOT "BUY AMERICA" REQUIREMENTS. SEE STANDARD SPECIFICATIONS SECTION 106, BUY AMERICA REQUIREMENTS.
- IN ACCORDANCE WITH SUBSECTION 630.10 OF THE STANDARD SPECIFICATIONS, THIS PROJECT IS CLASSIFIED AS A NON-SIGNIFICANT PROJECT.
- THE CONTRACTOR SHALL NOTIFY THE CITY 24 HOURS PRIOR TO STARTING WORK AND 24 HOURS PRIOR TO EACH DESIRED AND REQUIRED INSPECTION.
- ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR WILL HAVE THE PLAN SET AND CONTRACT DOCUMENTS ON-SITE WHILE WORK IS IN PROGRESS.
- EXCEPT WHERE OTHERWISE PROVIDED FOR IN THESE PLANS AND SPECIFICATIONS, THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SHALL APPLY.
- THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (1-800-922-1811 OR 811) AND OTHER AFFECTED UTILITIES TO LOCATE UNDERGROUND FACILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL POTHOLE AND SURVEY THE LOCATION AND ELEVATION OF ALL EXISTING UTILITIES THAT MAY BE AFFECTED BY CONSTRUCTION PRIOR TO START OF CONSTRUCTION. THE POTHOLING AND SURVEY WORK SHALL BE INCLUDED AND PAID FOR AS PART OF MOBILIZATION.
- CONTRACTOR SHALL CONFINE WORK TO THE CONSTRUCTION LIMITS SHOWN ON THE PLANS.
- PROJECT FACILITIES ARE TO BE LOCATED BASED ON THE SURVEY COORDINATES, ELEVATIONS, DIMENSIONS, AND/OR GEOMETRIC DESIGN DATA PROVIDED ON THE DRAWINGS. ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST FROM MULLER ENGINEERING COMPANY, INC.
- CONTRACTOR SHALL FIELD VERIFY THE LOCATION (HORIZONTAL AND VERTICAL) AT CONNECTIONS TO ALL EXISTING INFRASTRUCTURE. THIS INFORMATION SHALL BE COLLECTED AND SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION AND/OR PRIOR TO INSTALLATION OF ANY NEW FACILITIES SHOWN ON THESE CONTRACT DRAWINGS. THE ENGINEER WILL DETERMINE IF ANY MINOR MODIFICATIONS TO THE NEW FACILITIES SHOWN ON THE CONTRACT DRAWINGS ARE NECESSARY SUCH AS HORIZONTAL AND VERTICAL ADJUSTMENTS.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF ANY CONSTRUCTION PROBLEMS DUE TO CHANGED CONDITIONS OR DESIGN ERRORS ENCOUNTERED BY THE CONTRACTOR. THE CONTRACTOR AND ENGINEER WILL WORK TOGETHER TO REVISE THE PLANS PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK. ANY IMPROVEMENTS NOT CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS, OR THE APPROVED REVISED PLANS, SHALL BE REMOVED AND THE IMPROVEMENTS SHALL BE RECONSTRUCTED AT NO COST TO THE PROJECT.
- EXISTING FACILITIES NOT INDICATED TO BE REMOVED SHALL BE PROTECTED IN PLACE OR REMOVED AND REPLACED IN KIND, AS APPROVED BY THE CITY. ALL SIGNS IDENTIFIED FOR RELOCATION SHALL BE COORDINATED WITH THE CITY.
- ALL TREES/SHRUBS ARE TO BE PROTECTED DURING CONSTRUCTION UNLESS IDENTIFIED ON THE PLANS FOR REMOVAL.
- TOPSOIL SHALL BE STRIPPED, STOCKPILED, AND REPLACED OVER ALL DISTURBED AREAS AND SOIL RIPRAP AREAS.
- STAGING AREAS, STOCKPILE AREAS, AND ACCESS/HAUL ROADS ARE TO BE WITHIN THE CONSTRUCTION LIMITS SHOWN ON THE PLANS, UNLESS OTHERWISE APPROVED BY THE CITY.
- AREAS BEING DISTURBED BY THE GRADING OR CONSTRUCTION ACCESS / STAGING SHALL BE RESEED WITH SEED MIXES SPECIFIED ON THE DRAWINGS.
- COMPACTION REQUIREMENTS SHALL BE 95% OF THE MAXIMUM DRY DENSITY (ASTM D 968). MOISTURE REQUIREMENTS WILL BE WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT. TESTS MAY BE PERFORMED BY THE OWNER, IF A FAILED TEST IS RECEIVED THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF THE TEST AND ANY CORRECTIVE ACTIONS NECESSARY.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES AND FOR SATISFYING ALL APPLICABLE OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS. TEMPORARY EXCAVATIONS SHALL PROVIDE, AT MINIMUM, THE TRENCH DIMENSIONS AND CLEARANCES SHOWN OR SPECIFIED. TEMPORARY CONSTRUCTION SLOPES SHALL BE SLOPED, SHORED, SHEETED, AND/OR BRACED IN ACCORDANCE WITH STABILITY REQUIREMENTS AND APPLICABLE REGULATIONS, AND SHALL BE NO STEEPER THAN THE SLOPES SHOWN OR SPECIFIED WITHOUT THE APPROVAL OF THE ENGINEER. ANY SUCH APPROVALS BY THE ENGINEER WILL NOT RELIEVE THE CONTRACTOR FROM SOLE RESPONSIBILITY FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES.
- THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND INCLUDES TRAFFIC CONTROL IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE CITY'S REVIEW OF PLANS AND CONSTRUCTION IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.
- THE WORK WILL TAKE PLACE IN AND AROUND A STREAM, SUBJECT TO PERIODIC FLOODING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF SURFACE AND SUBSURFACE WATER DURING THE COURSE OF THE WORK. ANY DAMAGE TO THE WORK RESULTING FROM SURFACE FLOWS, BASE FLOWS OR FLOOD FLOWS INCLUDING BUOYANCY FORCES ON PIPELINES AND OTHER FACILITIES SHALL BE CORRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S SOLE COST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND SATISFYING THE REQUIREMENTS OF ANY APPLICABLE PERMITS PERTAINING TO WATER AND EROSION CONTROL.
- THE WATER CONTROL ITEM IS INCLUDED TO CONTROL BASE FLOW AND RUNOFF AND PROTECT THE PROJECT FROM DAMAGE DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING WATER CONTROL AND IMPLEMENTING IT TO MINIMIZE DAMAGE AND DELAYS TO THE PROJECT FROM RUNOFF AND GROUNDWATER. ANY DAMAGE TO THE WORK RESULTING FROM SURFACE FLOWS, BASE FLOWS OR FLOOD FLOWS INCLUDING BUOYANCY FORCES ON PIPELINES AND OTHER FACILITIES SHALL BE CORRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S SOLE COST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND SATISFYING THE REQUIREMENTS OF ANY APPLICABLE PERMITS PERTAINING TO WATER AND EROSION CONTROL.
- ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY RESULTING FROM THE WORK SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL IMMEDIATELY FIX ANY EXCAVATIONS OR EXCESSIVE PAVEMENT FAILURES CAUSED BY THE CONTRACTOR AND SHALL PROPERLY BARRICADE THE SITE UNTIL CONSTRUCTION IS COMPLETE. FAILURE BY THE CONTRACTOR TO CORRECT ANY OF THE ABOVE WITHIN 48 HOURS OF WRITTEN NOTICE BY THE OWNER SHALL CAUSE THE OWNER TO ISSUE A STOP WORK ORDER (RED TAG) AND/OR DO THE WORK AND MAKE A CLAIM AGAINST THE LETTER OF CREDIT FOR ANY COST INCURRED BY THE DISTRICT.

**GENERAL NOTES (CONTINUED):**

- WATER TRUCK, IF CALLED FOR BY THE ENGINEER, WILL BE PROVIDED TO KEEP WIND EROSION IN CHECK. DUST CONTROL SHALL BE AT THE COST OF THE CONTRACTOR.
- IF HEAVY EQUIPMENT TO BE USED ON THE PROJECT HAS PREVIOUSLY BEEN USED IN ANOTHER STREAM, RIVER, LAKE, POND, OR WETLAND, ONE OF THE FOLLOWING DISINFECTION PRACTICES IS NECESSARY PRIOR TO CONSTRUCTION TO PREVENT THE SPREAD OF NEW ZEALAND MUD SNAILS, ZEBRA MUSSELS, QUAGGA MUSSELS, WHIRLING DISEASE, AND ANY OTHER AQUATIC INVASIVE SPECIES INTO THIS DRAINAGE. THESE PRACTICES ARE ALSO NECESSARY AFTER PROJECT COMPLETION, PRIOR TO THE EQUIPMENT BEING USED IN ANOTHER STREAM, RIVER, LAKE, POND, OR WETLAND:
  - REMOVE ALL MUD AND DEBRIS FROM EQUIPMENT (TRACKS, TURRETS, BUCKETS, DRAGS, TEETH, ETC.) AND SPRAY / SOAK EQUIPMENT IN A 1:15 SOLUTION OF SPARQUAT INSTITUTIONAL CLEANER AND WATER. KEEP EQUIPMENT MOIST FOR AT LEAST 10 MINUTES OR
  - REMOVE ALL MUD AND DEBRIS FROM EQUIPMENT (TRACKS, TURRETS, BUCKETS, DRAGS, TEETH, ETC.) AND SPRAY / SOAK EQUIPMENT WITH WATER GREATER THAN 140 DEGREES FAHRENHEIT FOR AT LEAST 10 MINUTES.
 CLEAN HAND TOOLS, BOOTS, AND ANY OTHER EQUIPMENT THAT WILL BE USED IN THE WATER WITH ONE OF THE ABOVE OPTIONS AS WELL. THE COST OF DISINFECTING EQUIPMENT AND TOOLS SHALL BE INCIDENTAL TO THE PROJECT AND BE INCLUDED IN THE COST OF THE WORK.
- ENVIRONMENTAL WALKTHROUGH: ONCE CONSTRUCTION HAS BEEN COMPLETED THE CDOT PROJECT MANAGER, THE CDOT REGION 4 WATER POLLUTION CONTROL MANAGER, THE LOCAL AGENCY PROJECT MANAGER, AND THE CONTRACTOR WILL CONDUCT A WALKTHROUGH OF THE PROJECT SITE. THE PURPOSE OF THE WALKTHROUGH IS TO IDENTIFY ANY AREAS WHERE BMPS NEED TO BE REMOVED OR MAINTAINED. PLEASE CONTACT [\(970\)350-2264](tel:9703502264) AT LEAST 7 DAYS PRIOR TO FINAL ACCEPTANCE TO SCHEDULE THE WALKTHROUGH.
- WATER QUALITY/CDPS INACTIVATION: THE LOCAL AGENCY AND THE CONTRACTOR SHALL MAINTAIN EXISTING BMPS AND ENSURE THEIR COMPLETE REMOVAL FROM CDOT ROW ONCE 70% OF PREEEXISTING VEGETATION HAS BEEN ESTABLISHED.
- THE MIGRATORY BIRD TREATY ACT (MBTA) PROTECTS MIGRATORY BIRDS AND THEIR NESTS AND EGGS. FOR PROJECTS THAT COULD POTENTIALLY HAVE AN IMPACT, THE FOLLOWING CONDITIONS APPLY:
  - TREE TRIMMING/REMOVAL: TREE TRIMMING AND/OR REMOVAL ACTIVITIES SHALL BE COMPLETED BEFORE BIRDS BEGIN TO NEST OR AFTER THE YOUNG HAVE FLEDGED. IN COLORADO, MOST NESTING AND REARING ACTIVITIES OCCUR BETWEEN APRIL 1 AND AUGUST 31. HOWEVER, SINCE SOME BIRDS NEST AS EARLY AS FEBRUARY, A NESTING BIRD SURVEY SHALL BE CONDUCTED BY A BIOLOGIST BEFORE ANY TREE TRIMMING OR REMOVAL ACTIVITIES BEGIN.
  - BRIDGE/BOX CULVERT WORK: BRIDGE OR BOX CULVERT WORK THAT MAY DISTURB NESTING BIRDS SHALL BE COMPLETED BEFORE BIRDS BEGIN TO NEST OR AFTER THE YOUNG HAVE FLEDGED. NO BRIDGE OR BOX CULVERT WORK MAY TAKE PLACE BETWEEN APRIL 1 AND AUGUST 31. IF WORK ACTIVITIES ARE PLANNED BETWEEN THESE DATES, NESTS SHALL BE REMOVED (BEFORE NESTING BEGINS) AND APPROPRIATE MEASURES TAKEN TO ASSURE NO NEW NESTS ARE CONSTRUCTED. FAILURE TO REMOVE AND KEEP NESTS FROM BECOMING ESTABLISHED MAY POSTPONE PROJECT CONSTRUCTION.
  - CLEARING/GRUBBING ACTIVITIES: CLEARING AND GRUBBING OF VEGETATION THAT MAY DISTURB GROUND NESTING BIRDS SHALL BE COMPLETED BEFORE BIRDS BEGIN TO NEST OR AFTER THE YOUNG HAVE FLEDGED. IF WORK ACTIVITIES ARE PLANNED BETWEEN APRIL 1 AND AUGUST 31, VEGETATION SHALL BE REMOVED AND/OR TRIMMED TO A HEIGHT OF SIX (6) INCHES OR LESS PRIOR TO APRIL 1. ONCE VEGETATION HAS BEEN REMOVED AND/OR TRIMMED, APPROPRIATE MEASURES, I.E. REPEATED MOWING/TRIMMING, SHALL BE IMPLEMENTED TO ASSURE VEGETATION DOES NOT GROW MORE THAN SIX (6) INCHES. FAILURE TO MAINTAIN VEGETATION HEIGHT OF SIX (6) INCHES OR LESS MAY POSTPONE PROJECT CONSTRUCTION.
  - BIRDS OF PREY: FOR BIRDS OF PREY THAT COULD POTENTIALLY NEST NEAR THE PROJECT SITE, PLEASE CONTACT THE CDOT R-4 BIOLOGIST AND/OR REFER TO THE COLORADO PARKS AND WILDLIFE'S "RECOMMENDED BUFFER ZONES AND SEASONAL RESTRICTIONS FOR COLORADO RAPTORS" GUIDELINES AVAILABLE AT COLORADO PARKS AND WILDLIFE DISTRICT OFFICES.
- PERMIT REQUIREMENTS**
  - THE CONTRACTOR WILL BE REQUIRED TO OBTAIN STORMWATER PERMITS THROUGH THE CITY OF BOULDER, AND THE STATE OF COLORADO.
  - THE CONTRACTOR SHALL APPLY FOR AND OBTAIN AND INDUSTRIAL WASTEWATER DISCHARGE (DEWATERING) PERMIT (IF THERE ARE ANY DEWATERING DISCHARGES) FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE). THIS PERMIT SHALL BE APPLIED FOR AT LEAST 30 DAYS PRIOR TO THE FIRST ANTICIPATED DATE OF DEWATERING DISCHARGE.
- CONTACTS**

CITY OF BOULDER	KURT BAUER	303-441-4232
UDFCD	DAVID SKUODAS	303-455-6277
MULLER ENGINEERING COMPANY	CHRIS KROEGER	303-988-4939
(DESIGN ENGINEER)	JIM WATT	
CDOT	(DESIGN) ABRA GEISSLER	303-757-9906
	(CONSTRUCTION) CHARESE FEUERSTEIN	970-350-2160
XCEL ENERGY (ELECTRIC & GAS)	BOB VOEGELY	303-245-2395
CENTURY LINK (TELEPHONE & FIBER)	KATHY DUNBAR	303-441-7113
COMCAST (CABLE TV)	KEVIN YOUNG	720-281-8666
LEVEL 3 (FIBER)	TOM MIECZKOWSKI	720-888-2013
LEFT HAND WATER DISTRICT	DARWIN WILLIAMS	303-530-4200
- FOR CLARITY, ITEMS SHOWN FOR REMOVAL ON THE DEMOLITION AND REMOVAL PLANS MAY NOT BE SHOWN ON SUBSEQUENT SHEETS.



PLOTTED: 6/19/2015 10:12:15 AM  
NAME: P:\11-039.03 WONDERLAND CREEK - LOWER REACH - FINAL DESIGN\CAD11-039.03\_GEN.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>			<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			<b>Project No./Code</b>	
Creation Date: 07/18/13	Initials: JHK	 CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939		Date:	Comments:	Init.	No Revisions:		 Region 4 RDM			STM 110-081	
Last Modification Date: 06/18/15	Initials: JHK						Revised:					Designer: CLK Structure	
Full Path: P:\11-039.03\CAD							Void:					Detailer: JHK Numbers	
Drawing File Name: 11-039.03_GEN.dwg									Sheet Subset: GENERAL Subset Sheets:		G-4		Sheet Number: 4
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03											

**VOID-FILLED RIPRAP NOTES:**

1. THE COLOR OF RIPRAP AND VOID-FILL MATERIALS USED TO FILL THE RIPRAP VOIDS SHALL BE LIGHT GRAY AND/OR TAN AND SHALL BE UNIFORM. SAMPLES OF RIPRAP AND VOID-FILL MATERIALS SHALL BE SUBMITTED FOR THE REVIEW AND APPROVAL OF THE ENGINEER AND OWNER PRIOR TO CONSTRUCTION.
2. ELEVATION TOLERANCE FOR THE VOID-FILLED RIPRAP SHALL BE 0.10 FEET. THICKNESS OF VOID-FILLED RIPRAP SHALL BE NO LESS THAN THICKNESS SHOWN AND NO MORE THAN 2-INCHES GREATER THAN THE THICKNESS SHOWN.
3. WHERE "VOID-FILLED RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, RIPRAP SHALL BE MIXED WITH THE MATERIALS AND ASSOCIATED PROPORTIONS LISTED IN THE TABLE BELOW TO FILL THE VOIDS OF THE RIPRAP:

**TABLE 1 - VOID-FILLED RIPRAP**

VOID-FILLED RIPRAP APPROXIMATE PROPORTIONS (LOADER BUCKETS)				MATERIAL TYPE	MATERIAL DESCRIPTION
TYPE L	TYPE M	TYPE H	TYPE VH		
		7	7	RIPRAP	TYPE VH RIPRAP (D50=24")
				RIPRAP	TYPE H RIPRAP (D50=18")
	6	1	1	RIPRAP	TYPE M RIPRAP (D50=12")
6				RIPRAP	TYPE L RIPRAP (D50=9")
3	3	3	3	VOID-FILL MATERIAL	7-INCH MINUS CRUSHED ROCK SURGE (100% PASSING 7-INCH SIEVE, 80-100% PASSING 6-INCH SIEVE, 35-50% PASSING 3-INCH SIEVE, 10-20% PASSING 1.5-INCH SIEVE)
1	1	1	1	VOID-FILL MATERIAL	2 TO 4-INCH VTC ROCK (ANGULAR) (100% PASSING 4-INCH SIEVE, 50-70% PASSING 3-INCH SIEVE, 0-10% PASSING 2-INCH SIEVE), (FRACTURED FACE, ALL SIDES)
1.5	1.5	1.5	1.5	VOID-FILL MATERIAL	4-INCH MINUS PIT RUN SURGE (ROUND RIVER ROCK AND SAND, WELL GRADED, 90-100% PASSING 4-INCH SIEVE, 70-80% PASSING 1.5-INCH SIEVE, 40-60% PASSING 3/8-INCH SIEVE, 10-30% PASSING #16 SIEVE). ON-SITE GRANULAR ALLUVIUM MAY BE AN ALLOWABLE SUBSTITUTION.
	1.5	1.5	1.5	VOID-FILL MATERIAL	TYPE II BEDDING
1	1	1		VOID-FILL MATERIAL	NATIVE TOPSOIL
TOP LAYER FOR EXPOSED VOID-FILLED RIPRAP				TOP DRESSING	ADDITIONAL 4 TO 12-INCH COBBLES SHALL BE MIXED IN ON THE SURFACE OF EXPOSED VOID-FILLED RIPRAP (COVERING APPROXIMATELY 40% OF THE SURFACE) PRIOR TO COMPACTION OF THE VOID-FILLED RIPRAP. COBBLES SHALL BE FULLY EMBEDDED INTO THE MASS OF VOID-FILLED RIPRAP.

NOTE: MIX PROPORTIONS AND MATERIAL GRADATIONS ARE APPROXIMATE AND ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER. NO ADJUSTMENT IN UNIT PRICE FOR VOID-FILLED RIPRAP WILL BE ALLOWED BASED ON MODIFICATIONS TO THE MIX PROPORTIONS.

4. THE RIPRAP AND VOID-FILL MATERIALS SHALL BE THOROUGHLY MIXED PRIOR TO PLACEMENT AND SHALL BE INSTALLED AND COMPACTED SO THAT A DENSE, INTERLOCKED LAYER OF RIPRAP AND VOID-FILL MATERIAL IS PROVIDED WITH RIPRAP VOIDS COMPLETELY FILLED. THE LOOSE MATERIAL SHALL BE PLACED IN A SINGLE LIFT OF SUFFICIENT HEIGHT SUCH THAT FINAL GRADE WILL BE ACHIEVED UPON COMPACTION. IF THE COMPACTED MATERIAL IS BELOW FINAL GRADE, PLACEMENT OF ONLY THE SMALLER VOID-FILL MATERIALS TO ACHIEVE FINAL GRADE WILL NOT BE PERMITTED. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERIAL CONSIST PRIMARILY OF THE VOID-FILL MATERIALS. THE DENSITY AND INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL SHALL ESSENTIALLY BE THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT FILLING THE VOIDS.
5. PRIOR TO COMPACTION THE IN PLACE VOID-FILLED RIPRAP SHALL BE WATERED TO WASH THE FINE MATERIAL DOWN TO THE VOIDS AT THE LOWER PORTION OF THE MIX. THIS PROCESS SHALL BE REPEATED DURING COMPACTION AT THE DIRECTION OF THE ENGINEER. ADDITIONAL 4-INCH MINUS PIT RUN SURGE SHALL BE ADDED AS NEEDED.
6. COMPACTION OF THE VOID-FILLED RIPRAP SHALL BE PERFORMED BY WHEEL ROLLING WITH HEAVY RUBBER-TIRED EQUIPMENT (E.G., FRONT END LOADER). THE MOISTURE CONTENT OF THE MIXTURE SHALL BE AT OPTIMUM CONDITIONS PRIOR TO COMPACTION AND WATER SHALL BE ADDED, AS NECESSARY, AT THE DIRECTION OF THE ENGINEER.

**TABLE 2 - BOULDER FILLER MATERIAL**

APPROXIMATE PROPORTIONS (LOADER BUCKETS)	MATERIAL TYPE	MATERIAL DESCRIPTION
1	VOID-FILLED MATERIAL	7-INCH MINUS CRUSHED ROCK SURGE (100% PASSING 7-INCH SIEVE, 80-100% PASSING 6-INCH SIEVE, 35-50% PASSING 3-INCH SIEVE, 10-20% PASSING 1.5-INCH SIEVE)
1	VOID-FILLED MATERIAL	4-INCH MINUS PIT RUN SURGE (ROUND RIVER ROCK AND SAND, WELL GRADED, 90-100% PASSING 4-INCH SIEVE, 70-80% PASSING 1.5-INCH SIEVE, 40-60% PASSING 3/8-INCH SIEVE, 10-30% PASSING #16 SIEVE)
1	VOID-FILLED MATERIAL	TYPE II BEDDING
1/2 TO 1	VOID-FILLED MATERIAL	NATIVE TOPSOIL

**NOTE:**

1. COST OF BOULDER FILLER MATERIAL WHERE SPECIFIED SHALL BE INCLUDED IN THE COST OF THE BOULDERS (36" RIPRAP)
2. NOTE MIX PORTIONS AND MATERIAL GRADATIONS ARE APPROXIMATE AND ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER. MATERIAL SHALL BE PACKED TIGHTLY BETWEEN BOULDERS TO WITHIN 1"-2" OF THE TOP OF BOULDERS.

**GEOTECHNICAL INFORMATION:**

1. GEOTECHNICAL INVESTIGATION WONDERLAND CREEK IMPROVEMENTS BETWEEN 30TH STREET AND FOOTHILLS PARKWAY BOULDER, COLORADO NOVEMBER 23, 2011 BY: CTL THOMPSON INCORPORATED
2. GEOTECHNICAL INVESTIGATION BNSF RAILWAY BRIDGE (BRIDGE ID 0476-31.85) AND WONDERLAND CREEK IMPROVEMENTS SOUTH OF TALISMAN COURT AND TALISMAN PLACE BOULDER, COLORADO FEBRUARY 5, 2014 BY: CTL THOMPSON INCORPORATED
3. GEOTECHNICAL INVESTIGATION WONDERLAND CREEK IMPROVEMENTS BETWEEN DIAGONAL HIGHWAY 119 AND WINDING TRAIL DRIVE BOULDER, COLORADO JULY 3, 2013 BY: CTL THOMPSON INCORPORATED

**SURVEYOR INFORMATION:**

BASIS OF BEARINGS: ALL BEARINGS ARE BASED ON THE LINE CONNECTING THE C 1/4 CORNER OF SECTION 20 AND THE C-E 16TH CORNER OF SECTION 20, T.1N., R.70 W., 6th P.M. BEING A GRID BEARING OF N89°38'05"E, (1329.40') AS OBTAINED FROM A GLOBAL POSITIONING SYSTEM (GPS) SURVEY BASE ON THE COLORADO HIGH ACCURACY REFERENCE NETWORK (CHARN). SAID GRID BEARING IS NAD83 (2007) COLORADO STATE PLANE (NORTH ZONE - 501). BOTH CORNERS ARE MONUMENTED AS SHOWN HEREIN.

BASIS OF ELEVATIONS: PROJECT ELEVATIONS ARE BASED ON BENCH MARK V 321 RESET, PID LL1138, A STANDARD N.G.S. BENCH MARK DISK SET ON TOP OF A CONCRETE MONUMENT, WITH A NAVD 88 ELEVATION OF 5296.81 FT. V 321 RESET IS A NATIONAL GEODETIC SURVEY (NGS) 2ND ORDER CLASS I BENCHMARK.

COORDINATE DATUM: PROJECT COORDINATES ARE MODIFIED COLORADO STATE PLANE NORTH ZONE NAD '83(2007) COORDINATES. THE COMBINED ELEVATION/SCALE FACTOR USED TO MODIFY THE COORDINATES FROM STATE PLANE TO PROJECT COORDINATES IS 1.0002843248. THE RESULTING PROJECT COORDINATES ARE TRUNCATED BY 1,000,000' IN THE NORTHING AND 3,000,000' IN THE EASTING AFTER CONVERTING FROM STATE PLANE COORDINATES TO PROJECT COORDINATES. THE CHARN IS BASED ON THE NAD '83 (2007) DATUM.

PROJECT COORDINATES NORTHING US SURVEY FEET = (STATE PLANE COORDINATE NORTHING \* 1.0002843248 - 1,000,000).

PROJECT COORDINATES NORTHING US SURVEY FEET = (STATE PLANE COORDINATE EASTING \* 1.0002843248 - 3,000,000).

**LOCAL CONTROL POINTS:**

POINT #	NORTHING	EASTING	ELEV.
CP 100	256610.00	70330.13	5307.41
CP 101	256555.03	71425.55	5297.55
CP 102	256032.52	71737.90	5288.95
CP 103	255550.01	71728.11	5290.90
CP 104	255552.13	72175.83	5284.29
CP 105	259192.25	68075.96	5357.71
CP 106	259065.62	68401.58	5352.58
CP 107	258957.31	68554.95	5361.68
CP 108	258318.46	68618.02	5341.10
CP 109	257949.81	68904.26	5332.94
CP 110	257858.67	68931.09	5332.08
CP 111	257196.85	69432.82	5319.93
CP 112	257517.11	69081.73	5326.35

**IRRIGATION NOTES**

1. THE CITY OF BOULDER SHALL BE IMMEDIATELY NOTIFIED OF ALL IMPACTS TO THE EXISTING IRRIGATION SYSTEM.

WONDERLAND CREEK FLOWS (CFS)					
LOCATION	2-YR	5-YR	10-YR	50-YR	100-YR
28TH ST.	131	298	405	1,494	2,244
U/S OF FOOTHILLS PKWY	124	285	385	1,458	2,189

**TABLE 3 - MATERIALS GRADATION**

US STANDARD SIEVE SIZE	CDOT CLASS B FILTER MATERIAL	CDOT CLASS 6 AGGREGATE BASE COURSE
	% BY WEIGHT PASSING	% BY WEIGHT PASSING
3 INCH	-	-
1-1/2 INCH	100	-
3/4 INCH	-	100
3/8 INCH	-	-
NO. 4	20 - 60	30 - 65
NO. 8	-	25 - 55
NO. 16	10 - 30	-
NO. 50	0 - 10	-
NO. 100	-	-
NO. 200	0 - 3	3 - 12

**LEGEND**



Know what's below  
Call before you dig.

PLOTTED: 6/19/2015 10:12:18 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD11-039.03\_GEN.DWG

<b>Computer File Information</b> Creation Date: 07/18/13 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_GEN.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03		<b>Professional Engineer</b> License No. 37254 Date: 6/18/15		<b>Sheet Revisions</b> Date: Comments Init.		<b>As Constructed</b> No Revisions: Revised: Void:		WONDERS AND FLOOD CONTROL DISTRICT CDOT Region 4 RDM CITY OF BOULDER		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT Project No./Code STM 110-081 Designer: CLK Structure Numbers Detailer: JHK Sheet Subset: GENERAL Subset Sheets: G-5 18405 Sheet Number: 5	
--	--	---	--	--	--	--	--	---	--	---	--	---	--

**TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:**

Format \*

Horizontal Control \_\_\_\_\_

Vertical Control \_\_\_\_\_

Roadway Alignment \_\_\_\_\_

Original Terrain Data \_\_\_\_\_

Other: \_\_\_\_\_

\* Specify the information format, i.e., plan sheet, computer disk, computer printout, or other. The information marked is either contained on the plans or is available from the Engineer.

**TYPE OF PROJECT**

Landscaping  Major Reconstruction

Signalization  New Roadway Construction

Safety Improvement  Bridge Replacement

Asphalt Overlay  Bridge Widening

Concrete Overlay  New Bridge

Minor Widening  Other: Multi-path

SURVEY WORK TO BE PERFORMED BY OTHERS: \_\_\_\_\_

**WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 625:**

- Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- Verification and Maintenance of Horizontal and Vertical Control
- Verify or Determine existing grades and alignments
- Verify or Determine existing topography
- Clearing and Grubbing Limits (Section 201)
- Removal Limits (Section 202)
- Reset Items (Section 210)
- Excavation and Embankment (Section 203)

- Excavation
- Unclassified
  - Stripping
  - Muck
  - Rock
  - Borrow
  - Other: \_\_\_\_\_
  - Potholing

- Embankment
- Site Grading
  - Erosion Control (Perm)
  - Other: \_\_\_\_\_
  - As Staked Earthwork Quantities (See General Notes)

- Landscaping
- Top Soil (Section 207)
  - Seeding (Section 212)
  - Mulching (Section 213)
  - Planting (Section 214)
  - Herbicide (Section 217)
  - Other: \_\_\_\_\_

- Erosion Control (Section 208)
- Seeding (Temp)
  - Silt Fence
  - Erosion Bales
  - Erosion Logs
  - Riprap (Temp)
  - Other: \_\_\_\_\_

- Roadway Bases
- Untreated Subgrade
  - Treated Subgrade
  - Aggregate Base Course (Section 304)
  - Reconditioning
  - PMBB - Plant Mix Bituminous Base
  - Other: \_\_\_\_\_

	Slope Staking (Y/N)	Grid (Y/N)	Grade (Y/N)	Special Interval
Excavation	Yes	-	-	50 ft
	-	-	-	-
	Yes	-	-	50 ft
	-	-	-	-

	Slope Staking (Y/N)	Grid (Y/N)	Grade (Y/N)	Special Interval
Embankment	Yes	-	-	50 ft
	Yes	-	-	50 ft
	Yes	-	-	50 ft
	-	-	-	-

	Grid (Y/N)	Grade (Y/N)	Special Interval	Special Offset
Roadway Bases	Yes	-	-	50 ft
	Yes	-	-	50 ft
	Yes	-	-	50 ft
	-	-	-	-

- Pavements
- HMA - Hot Mix Asphalt (Section 403)
  - Concrete (Section 412)
  - Heating & Scarifying Treatment
  - Prime Coat, Tack Coat & Rejuvenating Agent (Section 407)
  - Seal Coat or Chip Seal (Section 409)
  - Other: \_\_\_\_\_

- Roadway Elements
- Curb and Gutter (Section 609)
  - Drop inlets - alignment and grades (Section 604)
  - Retaining Walls
  - Guard Rail (Section 606)
  - Sidewalk (Section 608)
  - Overlay Stationing
  - Other: \_\_\_\_\_

- Riprap (Perm) (Section 506)
- Slope and Ditch Paving (Section 507)

- Minor Structures
- Structure Excavation limits (Section 206)
  - Culverts (Section 603)
  - Culverts w/ Headwalls and Wingwalls (Section 601)
  - Concrete Box Culverts w/ Headwalls and Wingwalls
  - Pipes (Section 603)
    - Sanitary Sewer
    - Storm Sewer
    - Water
    - Irrigation
    - Miscellaneous
  - Manholes (Section 604)
  - Inlets (Section 604)
  - Other: \_\_\_\_\_

- Major Structures - Overhead Signs (Section 614), Concrete Box Culverts, Bridges - and all other structures assigned a structure number
- Structure Excavation limits (Section 206)
  - Concrete Box Culverts (Section 603) w/ Headwalls and Wingwalls (Section 601)
  - Piling locations and cut off elevations (Section 502)
  - Caisson locations and elevations (Section 503)
  - Footing locations, alignment, and elevations
  - Abutment/Pier locations, alignment, and elevations
  - Wingwall skew angles/offsets
  - Structural concrete form locations
  - Substructure As-constructed survey required for Bridges (Subsection 601 .12) and Overhead signs (S-614-50)
  - Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
  - Deck grades at Girder 10th or "n" th point locations and elevations
  - Slope and Ditch Paving (Section 507)
  - Other: \_\_\_\_\_

- Fencing (Section 607)
- Temporary
  - Permanent
  - Sound Barrier
  - Other: \_\_\_\_\_

- Delineators (Section 612)
- Temporary
  - Permanent

- Lighting (Section 613) and Traffic Control Devices (Permanent) (Section 614)
- Signal pole locations and elevations
  - Light pole locations and elevations
  - Sign locations
  - Field verify sign post locations, elevations, and lengths before fabrication.
  - Other: \_\_\_\_\_

	Grid (Y/N)	Special Interval	Special Offset
Pavements	Yes	-	50 ft
	Yes	-	50 ft
	-	-	-
	-	-	-

	Tangent Interval	Curve Interval	Special Offset
Curb & Gutter	Yes	-	50
	-	-	-

	Left Interval	Center Interval	Right Interval
Stationing	Yes	-	50 ft
	-	-	-

- Pavement Marking (Section 627)
  - Striping (Temp)
  - Striping (Perm)
  - Symbols
  - Other: \_\_\_\_\_
- Temporary Lighting and Construction Traffic Control Devices (Section 630)
  - Signal pole locations and elevations (Temp)
  - Light pole locations and elevations (Temp)
  - Sign Locations (Temp)
  - Other: \_\_\_\_\_
- All Easements (Temp Staking by P.L.S. Only)
- Right of Way (Temp Staking by P.L.S. Only)

**WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 629:**

- Monumentation (Section 629)
  - Control
  - Right of Way
  - Land corners, Aliquot corners
  - Easements
  - Reference the specified existing monuments: \*\* \_\_\_\_\_
  - Replace the specified existing monuments: \*\* \_\_\_\_\_
  - Locate monuments. It is estimated \_\_\_\_\_ hours are required.

NOTE: All 629 items shall include adequate research, calculations, and evaluations of evidence for monuments to be set.

\*\* A Tabulation of Survey Monuments may be provided on the plans.

**GENERAL NOTES:**

1. Unless indicated otherwise on this Survey Tabulation Sheet, all survey work and staking intervals shall be done in accordance with the latest edition of the CDOT Survey Manual.
2. Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.
3. The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer \_\_\_\_\_ days prior to the Presurvey Conference - Construction Survey.
4. Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.
5. The Contractor shall furnish an As Staked earthwork quantity to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDOT Survey Manual. A printed copy of the As Staked earthwork data and a computer disk in the specified format shall be submitted to the Engineer. The Contractor shall field verify original ground cross sections at a maximum 500 feet intervals.
6. Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within specified tolerance.
7. The Contractor's surveyor shall perform all field surveying and calculations necessary to tie plan grades into field grades.
8. The Contractor shall coordinate construction staking on the project with any utility work.
9. Fieldbooks shall contain daily records of points set and or measurements observed. The information recorded shall contain: date, crew members' names, point no., description, staking information, and sketches. If the survey information is collected electronically, information recorded shall be provided to the Project Engineer in a hard copy format that is intuitive, clear and related to the supplemental information recorded in the field books. All linear surveys, such as slope stakes and blue tops, shall have the station and offset information related to the measured information. Non-linear surveys such as structures staking shall have sketches relating electronic information, such as point numbers, to the sketch.
10. The Contractor's surveyor shall submit the following fieldbooks to the Engineer:
  - Horizontal Control (Primary & Secondary)
  - Vertical Control (i.e. Benchmarks)
  - Property Pin Ties
  - Horizontal Alignment
  - Grading
  - Slope Staking
  - Minor Structures
  - Major Structures
  - One fieldbook for each work category shown on this sheet
  - Other Fieldbook(s): \_\_\_\_\_

PLOTTED: 6/19/2015 10:12:21 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_GEN.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			Project No./Code	
Creation Date: 07/18/13 Initials: JHK		CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03		Date:		No Revisions:		Region 4 RDM			STM 110-081	
Last Modification Date: 06/18/15 Initials: JHK				Comments		Revised:					18405	
Full Path: P:\11-039.03\CAD				Init.		Void:					Sheet Number: 6	
Drawing File Name: 11-039.03_GEN.dwg												
AutoCAD 2014 Scale: AS SHOWN								DESIGNER: JWK Structure Numbers				
								DETAILER: JHK Structure Numbers				
								SHEET SUBSET: GENERAL Subset Sheets: G-6				

**SUMMARY OF APPROXIMATE QUANTITIES**

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	ALSO KNOWN AS / NOTES	UNIT	CHANNEL						PROJECT TOTALS		
BOOK	PAGE	SHEET					PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL
			201-00000	CLEARING AND GRUBBING		LS	1							1	
			202	REMOVAL OF ABANDONED UTILITY		LF	3,802							3,802	
			202-00001	REMOVAL OF STRUCTURE	VOLLEYBALL COURT & FLAGSTONE MEMORIAL	EACH	2							2	
			202-00010	REMOVAL OF TREE		EACH	463							463	
			202-00019	REMOVAL OF INLET		EACH	7							7	
			202-00020	REMOVAL OF CONCRETE BOX CULVERT	STREET CROSSINGS AND KALMIA LOW FLOW CROSSING	EACH	4							4	
			202-00021	REMOVAL OF MANHOLE		EACH	9							9	
			202-00027	REMOVAL OF RPRAP		SY	49							49	
			202-00031	REMOVAL OF FIRE HYDRANT		EACH	1							1	
			202-00035	REMOVAL OF PIPE		LF	3,542							3,542	
			202-00155	REMOVAL OF WALL		LF	810							810	
			202-00203	REMOVAL OF CURB AND GUTTER		LF	3,570							3,570	
			202-00210	REMOVAL OF CONCRETE PAVEMENT		SY	4,966							4,966	
			202-00220	REMOVAL OF ASPHALT MAT		SY	11,093							11,093	
			202-00240	REMOVAL OF ASPHALT MAT (PLANING)		SY	1,468							1,468	
			202-00420	REMOVAL OF PEDESTRIAN RAIL		LF	68							68	
			202-00700	REMOVAL OF LIGHT STANDARD		EACH	2							2	
			202-00810	REMOVAL OF GROUND SIGN		EACH	28							28	
			202-00815	REMOVAL OF SIGN (SPECIAL)	MANOR CARE SIGN	EACH	1							1	
			202-01000	REMOVAL OF FENCE		LF	1,256							1,256	
			202-04001	PLUG CULVERT		EACH	1							1	
			203-00000	UNCLASSIFIED EXCAVATION		CY	46,649							46,649	
			203-00062	EMBANKMENT MATERIAL (COMPLETE IN PLACE) (SPECIAL)	BWRD CLAYLINER	CY	854							854	
			203-00100	MUCK EXCAVATION		CY	1,000							1,000	
			203-01597	POTHOLING		hour	40							40	
			206-00100	STRUCTURE BACKFILL (CLASS 1)		CY	16,539							16,539	
			206-00510	FILTER MATERIAL (CLASS A)		CY	1,208							1,208	
			206-00520	FILTER MATERIAL (CLASS B)		CY	785							785	
			206-00530	FILTER MATERIAL (CLASS C)		CY	28							28	
			207-00210	STOCKPILE TOPSOIL		CY	7,350							7,350	
			207-00310	STOCKPILE WETLAND TOPSOIL		CY	1,200							1,200	
			207-00405	TOPSOIL (SPECIAL)		CY	57							57	
			208-00002	EROSION LOG (12 INCH)	SEDIMENT CONTROL LOG	LF	451							451	
			208-00020	SILT FENCE		LF	13,065							13,065	
			208-00041	ROCK CHECK DAM		EACH	5							5	
			208-00045	CONCRETE WASHOUT STRUCTURE		EACH	3							3	
			208-00051	STORM DRAIN INLET PROTECTION (TYPE 1)	INLET PROTECTION	LF	693							693	
			208-00070	VEHICLE TRACKING PAD		EACH	3							3	
			208-00103	REMOVAL AND DISPOSAL OF SEDIMENT (LABOR)		hour	200							200	
			208-00105	REMOVAL AND DISPOSAL OF SEDIMENT (EQUIPMENT)		hour	200							200	
			210	REMOVE AND RESET MISCELLANEOUS	DOG PARK PICNIC TABLES AND TRASH CANS	EACH	4							4	
			210-00007	RESET WHEEL STOP		EACH	8							8	
			210-00010	RESET MAILBOX STRUCTURE	USPS MAILBOX @ 34TH AND IRIS	EACH	1							1	
			210-00035	RESET WATER METER		EACH	3							3	
			210-00473	RESET TV CAMERAS	UCAR	EACH	1							1	
			210-00750	RESET LIGHT STANDARD		EACH	3							3	
			210-00840	RESET TRAFFIC SIGNAL POLE	28TH STREET & WINDING TRAIL DRIVE	EACH	1							1	
			210-00861	RESET WIRING		LS	1							1	

PLOTTED: 6/19/2015 10:12:26 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_GEN.DWG

<b>Computer File Information</b> Creation Date: 07/18/13      Initials: JHK Last Modification Date: 06/18/15      Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_GEN.dwg AutoCAD 2014      Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date:      Comments      Init.		<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>SUMMARY OF APPROXIMATE QUANTITIES</b>		Project No./Code STM 110-081 18405	
								Designer: MKN      Structure Numbers Detailer: JHK			Sheet Subset: GENERAL      Subset Sheets: G-7		Sheet Number: 7			

**SUMMARY OF APPROXIMATE QUANTITIES**

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	ALSO KNOWN AS / NOTES	UNIT	CHANNEL						PROJECT TOTALS		
BOOK	PAGE	SHEET					PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL
			210-01000	RESET FENCE		LF	105							105	
			210-01011	RESET GATE	FIRE ACCESS GATE AT SPRING CREEK PLACE	EACH	1							1	
			210-04010	ADJUST MANHOLE		EACH	2							2	
			211-03005	DEWATERING		LS	1							1	
			212-00006	SEEDING (NATIVE)		ACRE	5							5	
			212-00022	SEEDING (RIPARIAN)		ACRE	1							1	
			212-00028	SEEDING (WETLANDS)		ACRE	2							2	
			212-00032	SOIL CONDITIONING		ACRE	7							7	
			212-00050	SOD	SOD AND SOD (SAND GROWN)	SF	66,500							66,500	
			212-00100	TREE RETENTION AND PROTECTION	NOTE: CONSTRUCTION FENCING PAID FOR UNDER 607-11525	LS	1							1	
			213	SALVAGE AND REINSTALL EXISTING ROCK MULCH		SF	2,560							2,560	
			213-00005	MULCHING (DECORATIVE)		CF	1,310							1,310	
			213-00067	ROCK MULCH (WEED FREE)		SF	5,550							5,550	
			213-00460	METAL LANDSCAPE BORDER (3/16X4 INCH)		LF	300							300	
			214-00225	DECIDUOUS TREE (2.5 INCH CALIPER)		EACH	170							170	
			214-00260	DECIDUOUS TREE (6 FOOT)		EACH	35							35	
			214-00280	DECIDUOUS TREE (8 FOOT)		EACH	33							33	
			214-00301	DECIDUOUS SHRUB (TUBELING)		EACH	15							15	
			214-00350	DECIDUOUS SHRUB (5 GALLON CONTAINER)		EACH	1,907							1,907	
			214-00506	EVERGREEN TREE (6 FOOT) (BALL AND BURLAP)		EACH	15							15	
			214-00508	EVERGREEN TREE (8 FOOT) (BALL AND BURLAP)		EACH	12							12	
			214-00750	BROADLEAF EVERGREEN SHRUB (5 GALLON CONTAINER)		EACH	11							11	
			214-00805	GROUND COVER VINES (2.25 INCH POTS)		EACH	120							120	
			214-00910	PERENNIALS (1 GALLON CONTAINER)		EACH	100							100	
			214-01200	PLANT (TUBELING)	10 CU. IN. AND 40 CU. IN.	EACH	70,456							70,456	
			216	EROSION CONTROL BLANKET	COIR MAT	SY	10,074							10,074	
			216-00201	SOIL RETENTION BLANKET (STRAW-COCONUT)		SY	1,272							1,272	
			304-06007	AGGREGATE BASE COURSE (CLASS 6)		CY	3,044							3,044	
			403-33741	HOT MIX ASPHALT (GRADING S) (75) (PG 64-22)		TON	1,751							1,751	
			403-34741	HOT MIX ASPHALT (GRADING SX) (75) (PG 64-22)		TON	1,269							1,269	
			412-00801	CONCRETE PAVEMENT (8 INCH) (SPECIAL)	CROSS PAN & DRIVEWAY RAMPS	SY	152							152	
			420-00113	GEOTEXTILE (DRAINAGE) (CLASS 2)		SY	5,003							5,003	
			420-00133	GEOTEXTILE (SEPARATOR) (CLASS 2)		SY	469							469	
			503-00042	DRILLED CAISSON (42 INCH)	WALL 16 & KALMIA PED BRIDGE	LF	978							978	
			504-05000	WIRE MESH FACING	TRELLIS STRUCTURES ON WALLS	SF	2,110							2,110	
			504-08255	MASONRY LANDSCAPE WALL (DRY STACK)	SEATING AREA	SF	55							55	
			506-00036	GROUTED RIPRAP (36 INCH) (SPECIAL)	GROUTED BOULDER DROP STRUCTURE	CY	435							435	
			506-00206	RIPRAP (6 INCH)	TYPE VL RIPRAP (D50 = 6") - THIS IS FOR USE IN STAGING AREA	CY	200							200	
			506-00212	RIPRAP (12 INCH)	TYPE M VOID-FILLED RIPRAP (D50 = 12")	CY	1,627							1,627	
			506-00218	RIPRAP (18 INCH)	TYPE H VOID-FILLED RIPRAP (D50 = 18")	CY	1,609							1,609	
			506-00224	RIPRAP (24 INCH)	TYPE VH VOID-FILLED RIPRAP (D50 = 24")	CY	306							306	
			506-00236	RIPRAP (36 INCH)	BOULDERS	CY	1,100							1,100	
			506-00412	SOIL RIPRAP (12 INCH)	TYPE M SOIL RIPRAP (D50 = 12")	CY	13							13	
			514-00100	HAND RAIL	HEADWALL RAILING	LF	349							349	
			514-00201	PEDESTRIAN RAILING (STEEL) (SPECIAL)	STANDARD RAILING AND SPRING CREEK PLACE RAILING	LF	4,890							4,890	
			515-00120	WATERPROOFING (MEMBRANE)		SY	37							37	
			509	RESTRICTOR PLATE	AT FOOTHILLS PARKWAY/CBC	LS	1							1	
			601-03000	CONCRETE CLASS D		CY	359							359	

PLOTTED: 6/19/2015 10:12:29 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_GEN.DWG

<b>Computer File Information</b> Creation Date: 07/18/13      Initials: JHK Last Modification Date: 06/18/15      Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_GEN.dwg AutoCAD 2014      Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date:      Comments      Init.		<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>SUMMARY OF APPROXIMATE QUANTITIES</b> Designer: MKN      Structure Numbers Detailer: JHK Sheet Subset: GENERAL      Subset Sheets: G-8			Project No./Code STM 110-081 18405 Sheet Number: 8	
---	--	---	--	--	--	--	--	---	--	---	--	--	--	--	--	---	--

**SUMMARY OF APPROXIMATE QUANTITIES**

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	ALSO KNOWN AS / NOTES	UNIT	CHANNEL						PROJECT TOTALS		
BOOK	PAGE	SHEET					PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL
			601-03027	CONCRETE CLASS D (SPECIAL)	COLORED CONCRETE	CY	335							335	
			601-03030	CONCRETE CLASS D (BOX CULVERT)	BOX CULVERTS AND PEDESTRIAN CROSSINGS	CY	1,473							1,473	
			601-03050	CONCRETE CLASS D (WALL)	RETAINING WALLS	CY	4,390							4,390	
			601-40300	STRUCTURAL CONCRETE COATING		SY	5,249							5,249	
			603-01125	12 NCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)		LF	128							128	
			603-01185	18 NCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)		LF	416							416	
			603-01245	24 NCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)		LF	388							388	
			603-01305	30 NCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)		LF	140							140	
			603-01365	36 NCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)		LF	330							330	
			603-02185	23X14 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)		LF	14							14	
			603-05015	15 NCH REINFORCED CONCRETE END SECTION		EACH	1							1	
			603-05018	18 NCH REINFORCED CONCRETE END SECTION		EACH	5							5	
			603-05024	24 NCH REINFORCED CONCRETE END SECTION		EACH	1							1	
			603-05030	30 NCH REINFORCED CONCRETE END SECTION		EACH	1							1	
			603-05036	36 NCH REINFORCED CONCRETE END SECTION		EACH	2							2	
			603-50004	4 INCH PLASTIC PIPE		LF	399							399	
			603-50006	6 INCH PLASTIC PIPE		LF	132							132	
			603-50008	8 INCH PLASTIC PIPE		LF	388							388	
			603-50010	10 NCH PLASTIC PIPE		LF	423							423	
			603-50012	12 NCH PLASTIC PIPE		LF	60							60	
			603-1	9X4.5 FOOT CONCRETE BOX CULVERT (PRECAST)	BRIDGER TRAIL CBC	LF	344							344	
			603-2	12X5.5 FOOT CONCRETE BOX CULVERT (PRECAST)	IRIS CBC	LF	836							836	
			603-71610	16X10 FOOT CONCRETE BOX CULVERT (PRECAST)	28TH UNDERPASS	LF	176							176	
			604-00305	INLET TYPE C (5 FOOT)		EACH	3							3	
			604-00310	INLET TYPE C (10 FOOT)		EACH	2							2	
			604-00315	INLET TYPE C (15 FOOT)		EACH	1							1	
			604-00350	INLET TYPE C (SPECIAL)	MODIFIED TYPE C INLET	EACH	3							3	
			604-00550	INLET TYPE D (SPECIAL)	MODIFIED TYPE D INLET	EACH	1							1	
			604-16005	INLET TYPE 16 (5 FOOT)	NO. 16 COMBINATION INLET	EACH	3							3	
			604-16010	INLET TYPE 16 (10 FOOT)	NO. 16 COMBINATION INLET	EACH	2							2	
			604-16605	INLET TYPE 16 (TRIPLE) (5 FOOT)	TRIPLE NO. 16 COMBINATION INLET	EACH	2							2	
			604-19105	INLET TYPE R L 5 (5 FOOT)	5' TYPE R INLET	EACH	1							1	
			604-19110	INLET TYPE R L 5 (10 FOOT)	5' TYPE R INLET	EACH	1							1	
			604-19205	INLET TYPE R L 10 (5 FOOT)	15' TYPE R INLET	EACH	3							3	
			604-19305	INLET TYPE R L 15 (5 FOOT)	10' TYPE R INLET	EACH	1							1	
			604-19310	INLET TYPE R L 15 (10 FOOT)	15' TYPE R INLET	EACH	2							2	
			604-30005	MANHOLE SLAB BASE (5 FOOT)		EACH	4							4	
			604-30010	MANHOLE SLAB BASE (10 FOOT)		EACH	14							14	
			604-30015	MANHOLE SLAB BASE (15 FOOT)		EACH	10							10	
			605-00041	4 INCH PERFORATED PIPE UNDERDRAIN (SPECIAL)	RETAINING WALL UNDERDRAIN	LF	4,180							4,180	
			605-00061	6 INCH PERFORATED PIPE UNDERDRAIN (SPECIAL)	WQ POND UNDERDRAIN	LF	261							261	
			607-11400	FENCE PICKET		LF	48							48	
			606-11005	BRIDGE RAIL TYPE 10 (SPECIAL)		LF	69							69	
			607-11460	FENCE WOOD RAILING		LF	214							214	
			607-11455	FENCE WOOD		LF	296							296	
			607-11525	FENCE (PLASTIC)	CONSTRUCTION FENCE	LF	10,281							10,281	
			607-53142	FENCE CHAIN LINK (42 INCH)		LF	197							197	
			608-00000	CONCRETE SIDEWALK		SY	9,598							9,598	

PLOTTED: 6/19/2015 10:12:33 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_GEN.DWG

<b>Computer File Information</b> Creation Date: 07/18/13      Initials: JHK Last Modification Date: 06/18/15      Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_GEN.dwg AutoCAD 2014      Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date:      Comments      Init.		<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>SUMMARY OF APPROXIMATE QUANTITIES</b> Designer: MKN      Structure Numbers Detailer: JHK Sheet Subset: GENERAL      Subset Sheets: G-9			Project No./Code STM 110-081 18405 Sheet Number: 9	
---	--	---	--	--	--	--	--	---	--	--	--	--	--	--	--	---	--

**SUMMARY OF APPROXIMATE QUANTITIES**

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	ALSO KNOWN AS / NOTES	UNIT	CHANNEL						PROJECT TOTALS		
BOOK	PAGE	SHEET					PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL
			608-00010	CONCRETE CURB RAMP		SY	256							256	
			608-00060	STONE PAVERS		SF	160							160	
			608-00350	CONCRETE SIDEWALK (COLORED)	COLORED CONCRETE SHOULDER	SY	803							803	
			609-20010	CURB TYPE 2 (SECTION B)		LF	108							108	
			609-21010	CURB AND GUTTER TYPE 2 (SECTION I-B)	SPILL CURB OUTFALL/MEDIAN CURB	LF	537							537	
			609-21023	CURB AND GUTTER TYPE 2 (SECTION I-B) (SPECIAL)	CURB AND GUTTER PER CITY OF BOULDER DETAIL	LF	2,970							2,970	
			609-24003	GUTTER TYPE 2 (3 FOOT)	PAN	LF	159							159	
			609-24004	GUTTER TYPE 2 (4 FOOT)	PAN	LF	5							5	
			609-24005	GUTTER TYPE 2 (5 FOOT)	PAN	LF	6							6	
			609-24008	GUTTER TYPE 2 (8 FOOT)	PAN	LF	73							73	
			609-70040	CURB (COMPOSITE MATERIAL)	CURB STOP	LF	80							80	
			612-00039	DELINEATOR (FLEXIBLE) (SURFACE MOUNTED)	AT WINDING TRAIL PEDESTRIAN CROSSING	EACH	6							6	
			613-00050	1/2 INCH ELECTRICAL CONDUIT		LF	40							40	
			613-00206	2 INCH ELECTRICAL CONDUIT (BORED)		LF	120							120	
			613-00306	3 INCH ELECTRICAL CONDUIT (BORED)		LF	340							340	
			613-01050	1/2 INCH ELECTRICAL CONDUIT (PLASTIC)		LF	530							530	
			613-01100	1 INCH ELECTRICAL CONDUIT (PLASTIC)		LF	2,340							2,340	
			613-01200	2 INCH ELECTRICAL CONDUIT (PLASTIC)		LF	725							725	
			613-01300	3 INCH ELECTRICAL CONDUIT (PLASTIC)		LF	100							100	
			613-10000	WIRING		LS	1							1	
			613-13000	LUMINAIRE (LED)		EACH	16							16	
			613-13001	LUMINAIRE (SPECIAL )(LED)(12 WATT)		EACH	2							2	
			613-50010	PHOTOELECTRIC CELL		EACH	1							1	
			613-50100	LIGHTING CONTROL CENTER	COLD SEQUENCE METER/POWER PEDESTAL	EACH	5							5	
			613-50130	4-PLEX RECEPTACLE (WITH BACK BOX AND COVER)		EACH	6							6	
			615-65005	IRRIGATION DIMENSION STRUCTURE	TURNOUT STRUCTURE GATES, TRASH RACK, AND RAILING	LS	1							1	
			619	16" EPOXY LINED STEEL PIPE	IRIS AVE. WATER LINE	LF	281							281	
			619-00000	WATER METER AND VAULT		EACH	3							3	
			619-10060	6 INCH WELDED STEEL PIPE	CASING PIPE	LF	30							30	
			619-10180	18 INCH WELDED STEEL PIPE	CASING PIPE	LF	461							461	
			619-10200	20 NCH WELDED STEEL PIPE	CASING PIPE	LF	176							176	
			619-10280	28 NCH WELDED STEEL PIPE	CASING PIPE	LF	191							191	
			619-40060	3/4 INCH COPPER PIPE	WATER LINE	LF	84							84	
			619-50640	8 INCH PLASTIC PIPE	WATER LINE	LF	407							407	
			619-50960	12 INCH PLASTIC PIPE	WATER LINE	LF	175							175	
			619-51280	16 INCH PLASTIC PIPE	WATER LINE	LF	139							139	
			619-71516	2 INCH AIR AND VACUUM VALVE	IRIS AVE. WATER LINE	EACH	2							2	
			619-75064	8 INCH GATE VALVE		EACH	8							8	
			619-75096	12 INCH GATE VALVE		EACH	2							2	
			619-75116	16 INCH GATE VALVE		EACH	1							1	
			619-78048	6 INCH FIRE HYDRANT		EACH	1							1	
			620-00001	FIELD OFFICE (CLASS 1)		EACH	1							1	
			622	BNSF CANOPY	INCLUDES BOTH CANOPIES	LS	1							1	
			622-00010	BICYCLE RACK		EACH	20							20	
			623	EXISTING IRRIGATION SYSTEM MODIFICATION		LS	1							1	
			623-04003	CONTROLLER COMMUNICATION CABLE	WINDING TRAIL IRRIGATION CONTROL	LF	100							100	
			623-09900	SPRINKLER SYSTEM		LS	1							1	
			623-09905	IRRIGATION ASSEMBLY		EACH	1							1	

PLOTTED: 6/19/2015 10:12:37 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_GEN.DWG

<b>Computer File Information</b> Creation Date: 07/18/13      Initials: JHK Last Modification Date: 06/18/15      Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_GEN.dwg AutoCAD 2014      Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date:      Comments      Init.		<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>SUMMARY OF APPROXIMATE QUANTITIES</b>		Project No./Code STM 110-081 18405	
								Designer: MKN      Structure Numbers Detailer: JHK			Sheet Subset: GENERAL      Subset Sheets: G-10		Sheet Number: 10			

**SUMMARY OF APPROXIMATE QUANTITIES**

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	ALSO KNOWN AS / NOTES	UNIT	CHANNEL						PROJECT TOTALS		
BOOK	PAGE	SHEET					PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL
			625-00000	CONSTRUCTION SURVEYING		LS	1							1	
			626-00000	MOBILIZATION		LS	1							1	
			627-00011	PAVEMENT MARKING PAINT (WATERBORNE)		GAL	30							30	
			628-00085	BRIDGE GIRDER AND DECK UNIT (85 FEET TO 90 FEET)	KALMIA PEDESTRIAN BRIDGE	EACH	1							1	
			630-00000	FLAGGING		HOUR	250							250	
			630-00003	UNFORMED TRAFFIC CONTROL		HOUR	8							8	
			630-00007	TRAFFIC CONTROL INSPECTION		DAY	94							94	
			630-00012	TRAFFIC CONTROL MANAGEMENT		DAY	238							238	
			630-80336	BARRICADE (TYPE 3 M-B) (TEMPORARY)		EACH	6							6	
			630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)		EACH	80							80	
			630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)		EACH	6							6	
			630-80355	PORTABLE MESSAGE SIGN PANEL	PROJECT IDENTIFICATION SIGN	EACH	4							4	
			630-80360	DRUM CHANNELIZNG DEVICE		EACH	70							70	
			630-80370	CONCRETE BARRIER (TEMPORARY)		LF	440							440	
			630-80380	TRAFFIC CONE		EACH	40							40	
			630-86810	TRAFFIC SIGNAL (TEMPORARY)		EACH	1							1	
			700-70021	F/A ON-THE-JOB TRAINEE		FA	1							1	
			700-70042	F/A RAILROAD FLAGGING		FA	1							1	
			700-70370	F/A SIGNING		FA	1							1	

PLOTTED: 6/19/2015 10:12:40 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_GEN.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		Project No./Code		
Creation Date: 07/18/13	Initials: JHK			Date:	Comments:	Init.	No Revisions:	SUMMARY OF APPROXIMATE QUANTITIES		STM 110-081		
Last Modification Date: 06/18/15	Initials: JHK										18405	
Full Path: P:\11-039.03\CAD									Designer: MKN	Structure Numbers		
Drawing File Name: 11-039.03_GEN.dwg									Detailer: JHK			
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03						Sheet Subset: GENERAL	Subset Sheets: G-11	Sheet Number: 11		



**SUMMARY OF EARTHWORK**

**SUMMARY OF EARTHWORK QUANTITIES**

		CUBIC YARDS
<b>UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)</b>		
ROADWAY, TRAIL, DITCH (FROM COMPUTER)		46,649
<b>TOTAL FOR PAY QUANTITY</b>		<b>46,649</b>
<b>MUCK EXCAVATION</b>		
		1,000
<b>TOTAL FOR PAY QUANTITY</b>		<b>1,000</b>
<b>STRUCTURE BACKFILL (CLASS 1)</b>		
		15,658
<b>TOTAL FOR PAY QUANTITY</b>		<b>15,658</b>
<b>EMBANKMENT MATERIAL (COMPLETE IN PLACE) (SPECIAL)</b>		
BWRD CLAY LINER (FROM CROSS SECTIONS)		854
<b>TOTAL FOR PAY QUANTITY</b>		<b>854</b>
<b>FOR INFORMATION ONLY</b>		
<b>COMPACTION (SEE SPECS FOR TYPE)</b>		<b>CUBIC YARDS</b>
EMBANKMENT:		
EMBANKMENT MATERIAL (COMPLETE IN PLACE)		6,276
EMBANKMENT MATERIAL (COMPLETE IN PLACE) (SPECIAL)		854
STRUCTURE BACKFILL (CLASS 1)		15,658
<b>TOTAL</b>		<b>22,788</b>
<b>WETTING</b>		<b>M GAL</b>
COMPACTION (0.04 MGAL/CY X COMPACTION TOTAL)		912
<b>TOTAL</b>		<b>912</b>
<b>EARTHWORK QUANTITIES BALANCE:</b>		<b>CUBIC YARDS</b>
<b>EMBANKMENT (NET)</b>		
EMBANKMENT - ROADWAY, TRAIL, DITCH, CHANNEL (FROM COMPUTER)		6,276
<b>SUBTOTAL</b>		<b>6,276</b>
<b>EMBANKMENT X 1.15</b>		7,218
<b>TOTAL</b>		<b>7,218</b>
<b>UNCLASSIFIED EXCAVATION</b>		
ROADWAY, TRAIL, DITCH, CHANNEL		46,649
STRUCTURE BACKFILL CLASS 1		15,658
CULVERTS, WALLS		13,897
AGGREGATES		10,553
EMBANKMENT MATERIAL (COMPLETE IN PLACE) (SPECIAL)		854
<b>TOTAL</b>		<b>87,611</b>
<b>EXCESS - CONTRACTOR HAUL</b>		80,393

**NOTES:**

1. EARTHWORK VOLUMES ARE CALCULATED TO THE PROPOSED FINISHED GRADE
2. RAW EARTHWORK VOLUMES ARE CALCULATED TO THE TOP OF EXISTING PAVEMENT.  
NO ADJUSTMENT HAS BEEN MADE TO ACCOUNT FOR THE VOLUMES OF EXISTING TOPSOIL OR PAVEMENT DESIGNATED FOR REMOVAL.
3. MATERIALS QUANTITIES ARE ACTUAL IN-PLACE QUANTITIES AND DO NOT REPRESENT UNCOMPACTED VOLUMES.
4. SOME AREAS OF EXCAVATION MAY REQUIRE RIPPING.
5. THE ROADWAY QUANTITIES BALANCE ASSUMES THAT ON-SITE MATERIAL IS NOT SUITABLE FOR USE AS STRUCTURE BACKFILL CLASS 1. IF IT IS DETERMINED DURING CONSTRUCTION THAT SOME ON-SITE MATERIAL IS SUITABLE FOR THIS, THEN THE ROADWAY QUANTITIES BALANCE MAY BE AFFECTED.
6. ALL PROPOSED IMPROVEMENTS INCLUDING RETAINING WALLS, CONCRETE, CULVERTS, PIPES, UTILITIES, AND AGGREGATE ARE CONSIDERED TO BE COMPLETE IN PLACE. NO ADDITIONAL MEASUREMENT OR PAYMENT SHALL BE MADE FOR EXCAVATION OR EMBANKMENT ASSOCIATED WITH THESE ITEMS. THE COST FOR THESE ITEMS SHALL INCLUDE THIS WORK. INCLUDING PROPER DISPOSAL OF EXCESS MATERIAL AT AN OFFSITE LOCATION.
7. EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF AT AN OFFSITE LOCATION.

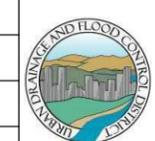
PLOTTED: 6/19/2015 10:12:54 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 13-16.DWG

<b>Computer File Information</b>		 MULLER ENGINEERING CO., INC. CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03		<b>Sheet Revisions</b>			<b>As Constructed</b>  No Revisions:  Revised:  Void:	  	WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		Project No./Code	
Creation Date: 05/28/15	Initials: JHK			Date:	Comments:	Init.			<b>SUMMARY OF EARTHWORK</b>		STM 110-081	
Last Modification Date: 06/18/15	Initials: JHK								Designer: MKN	Structure Numbers	18405	
Full Path: P:\11-039.03\CAD									Detailer: JHK		Sheet Number: 12	
Drawing File Name: 11-039.03_TABULATIONS 13-16.dwg					Sheet Subset: GENERAL	Subset Sheets: G-12						
AutoCAD 2014	Scale: AS SHOWN											

## TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS

STATION	SIDE	REMOVAL OF TREE	REMOVAL OF PEDESTRIAN RAIL	RESET MAILBOX STRUCTURE	REMOVE GROUND SIGN	REMOVE SIGN (SPECIAL)	REMOVE AND RESET TRAFFIC SIGNAL POLE	REMOVE AND RESET WHEEL STOP	REMOVE AND RESET MISC.	REMOVAL OF RIPRAP	REMOVAL OF WALL	REMOVAL OF CONCRETE BOX CULVERT	REMOVAL OF STRUCTURE	REMOVAL OF CURB AND GUTTER	REMOVAL OF CONCRETE PAVEMENT	COMMENTS
		EA	LF	EA	EA	EA	EA	EA	EA	SY	LF	EA	EA	LF	SY	
BWRD 10+00 TO 12+80	RT & LT	33														SHEET DM-1
BWRD 12+80 TO 16+20	RT & LT	36														SHEET DM-2
BWRD 16+20 TO 17+00	RT & LT	7														SHEET DM-3
WC 52+20 TO 57+90	RT & LT	32														SHEET DM-4
WC 62+75 TO 68+05	RT & LT	23														SHEET DM-5
WC 68+05 TO 71+00	RT & LT	15														SHEET DM-6
WC 71+00 TO 73+00	LT	1														SHEET DM-7
WC 203+60 TO 207+00	RT & LT	36														SHEET DM-8
WC 207+00 TO 210+95	RT & LT	111														SHEET DM-9
WC 210+95 TO 215+00	RT & LT	77														SHEET DM-10
WC 215+00 TO 220+90	RT & LT	22														SHEET DM-11
WC 220+90 TO 226+00	RT & LT	39														SHEET DM-12
WC 226+00 TO 231+00	RT & LT	31														SHEET DM-13
BWRD 11+11	RT													10		WATER LINE IRRIGATION TAP
BWRD 11+42	RT													14		ENTRANCE TO TRAIL RAMP
BWRD 14+62	LT														86	TRAIL ADJACENT TO FOOTHILLS
BWRD 14+79	RT														44	SANITARY SEWER ACCESS DRIVE
BWRD 15+60	LT												1			VOLLEYBALL COURT
BWRD 15+68	LT													24		AT CONSTRUCTION ACCESS
WC 51+76 TO 53+43	RT													167		TALISMAN
WC 52+34 TO 53+13	LT							8						156		APARTMENT PARKING LOT
WC 52+57 TO 53+23	LT													144		APARTMENT PARKING LOT
WC 53+02	LT														48	APARTMENT PARKING LOT
WC 53+12	LT														28	APARTMENT PARKING LOT
WC 53+15 TO 53+19	LT													34		APARTMENT PARKING LOT
WC 53+21	LT														22	APARTMENT PARKING LOT
WC 53+43	RT										5					SPRING CREEK WINGWALL
WC 53+71	LT										5					SPRING CREEK WINGWALL
WC 53+75	RT											1				SPRING CREEK PLACE
WC 53+74 TO 54+11	LT													62		SOUTH WEST OF SPRING CREEK
WC 53+74 TO 53+56	RT													67		NORTH EAST OF SPRING CREEK
WC 53+82	RT														15	PAN NORTH EAST OF SPRING CREEK
WC 53+77	RT										4					SPRING CREEK WINGWALL
WC 54+07	LT										4					SPRING CREEK WINGWALL
WC 54+14	LT													33		NORTH WEST OF SPRING CREEK
WC 53+62	RT															SPRING CREEK
WC 61+15 TO 62+47	RT & LT														116	WALK SOUTH EAST CORNER 34TH & IRIS
WC 61+66 TO 62+86	RT													91		NORTH EAST CORNER 34TH & IRIS
WC 61+70 TO 62+61	RT													92		SOUTH EAST CORNER 34TH & IRIS
WC 62+40	RT															COORDINATE WITH USPS
WC 62+41	RT											30				34TH WINGWALL
WC 62+42 TO 62+72	RT														25	WALK NORTH EAST CORNER 34TH & IRIS
WC 62+45	LT													13		WATER LINE IRRIGATION TAP ON 34TH
WC 62+51	RT															NORTH EAST CORNER 34TH & IRIS
WC 62+52	RT														34	34TH HEADWALL RAILING
WC 62+59	RT														1	SOUTH EAST CORNER 34TH & IRIS
WC 62+81 TO 65+57	RT													313		SOUTH SIDE OF IRIS
WC 62+84 TO 65+58	RT														155	WALK SOUTH SIDE OF IRIS
WC 62+94	RT & LT															34TH HEADWALL RAILING
WC 62+96 TO 71+30	RT & LT													636		NORTH SIDE OF IRIS

PLOTTED: 6/19/2015 10:12:58 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 13-16.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT				Project No./Code		
Creation Date: 05/28/15	Initials: JHK			Date:	Comments:	Init.	  		<b>TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS</b>				STM 110-081	
Last Modification Date: 06/18/15	Initials: JHK			No Revisions:	Designer: MKN    Structure Numbers Detailer: JHK    Numbers				18405					
Full Path: P:\11-039.03\CAD				Revised:					Sheet Subset: GENERAL    Subset Sheets: G-13		Sheet Number: 13			
Drawing File Name: 11-039.03_TABULATIONS 13-16.dwg				Void:	MEC PROJECT NO. 11039.03									

## TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS

STATION	SIDE	REMOVAL OF TREE	REMOVAL OF PEDESTRIAN RAIL	RESET MAILBOX STRUCTURE	REMOVE GROUND SIGN	REMOVE SIGN (SPECIAL)	REMOVE AND RESET TRAFFIC SIGNAL POLE	REMOVE AND RESET WHEEL STOP	REMOVE AND RESET MISC.	REMOVAL OF RIPRAP	REMOVAL OF WALL	REMOVAL OF CONCRETE BOX CULVERT	REMOVAL OF STRUCTURE	REMOVAL OF CURB AND GUTTER	REMOVAL OF CONCRETE PAVEMENT	COMMENTS
		EA	LF	EA	EA	EA	EA	EA	EA	EA	SY	LF	EA	EA	LF	
WC 63+06	RT														13	WALK NORTH EAST CORNER 34TH & IRIS
WC 63+48	RT				1											NORTH SIDE OF IRIS
WC 63+50	RT													29		DRIVE 4
WC 63+65	RT													31		DRIVE 4
WC 63+98	RT													10		DRIVE 3
WC 64+04	RT													11		DRIVE 3
WC 64+30 TO 64+96	RT													56		DRIVE 2
WC 65+22	RT													74		DRIVE 2
WC 65+25	RT													36		DRIVE 2
WC 65+25 TO 65+98	RT													62		WALK BETWEEN DRIVE 1 AND 2
WC 65+31	LT				1											NORTH SIDE OF IRIS
WC 65+57 TO 66+30	LT													64		BRIDGER TRAIL PAN
WC 65+96	RT													29		DRIVE 1
WC 65+96 TO 66+26	LT													17		WALK SOUTH WEST CORNER BRIDGER
WC 66+13 TO 66+48	RT													54		DRIVE 1
WC 66+67	RT													11		CONCRETE PAN NORTH OF IRIS
WC 67+85	LT				1											NORTH SIDE OF IRIS
WC 71+23	LT				1											NORTH SIDE OF IRIS
WC 71+46 TO 71+50	LT													30		AT BANK ACCESS
WC 71+51 TO 74+00	LT													278		WALK NORTH SIDE OF IRIS
WC 71+51	LT													28		AT IRRIGATION TYPE D
WC 71+61	LT				1											NORTH SIDE OF IRIS
WC 71+97	LT													10		WATER LINE IRRIGATION TAP
WC 72+09	LT				1											NORTH SIDE OF IRIS
WC 80+00	LT													105		TRAIL REMOVAL D/S OF DIAGONAL
WC 202+90 TO 204+87	LT													395		SOUTH OF FIRE ACCESS BRIDGE
WC 203+94 TO 204+17	LT													30		SOUTH OF FIRE ACCESS BRIDGE
WC 204+03	LT													3		PAN SOUTH OF FIRE ACCESS BRIDGE
WC 204+23 TO 204+82	LT									60						ROCK WALL SOUTH OF FIRE ACCESS BRIDGE
WC 204+31	LT				1											SOUTH OF FIRE ACCESS BRIDGE
WC 204+57 TO 204+86	LT													43		SOUTH OF FIRE ACCESS BRIDGE
WC 205+07	LT													22		NORTH OF FIRE ACCESS BRIDGE
WC 205+08 TO 208+98	LT													547		NORTH OF FIRE ACCESS BRIDGE
WC 205+16 TO 205+72	LT									55						ROCK WALL NORTH OF FIRE ACCESS BRIDGE
WC 205+19 TO 206+63	LT													167		APARTMENT PARKING LOT, AS NEEDED
WC 205+63	LT				1											NORTH OF FIRE ACCESS BRIDGE
WC 206+07	LT				1											NORTH OF FIRE ACCESS BRIDGE
WC 207+94	LT									31						SOUTH OF DOG PARK
WC 208+60	LT								2							TRASH CANS AT DOG PARK
WC 208+60	LT								2							PICNIC BENCH AT DOG PARK
WC 208+58 TO 212+16	LT													341		EMERGENCY ACCESS PATH
WC 209+23 TO 209+72	RT										31					ROCK WALL NORTH EAST OF EX. PED. CROSSING
WC 209+31	LT												1			FLAGSTONE MEMORIAL
WC 209+31 TO 210+28	RT													38		TRAIL INTO APARTMENT COMPLEX
WC 209+34	RT & LT											1				LOWFLOW PEDESTRIAN CROSSING
WC 2010+20	LT													19		TRAIL INTO APARTMENT COMPLEX
WC 209+70 TO 212+57	RT													303		TRAIL FROM PED CROSSING NORTH
WC 211+35	RT													60	13	KALMIA AND ISLAND DR.
WC 212+16	LT													34		BEGINNING OF EMERGENCY ACCESS
WC 212+50	RT										7					SOUTH EAST CORNER OF KALMIA CBC

PLOTTED: 6/19/2015 10:13:02 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 13-16.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		<b>WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT</b>				<b>Project No./Code</b>	
Creation Date: 05/28/15	Initials: JHK	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03		<input type="checkbox"/>	Date:	Comments	Init.	Region 4 RDM		<b>TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS</b>		<b>STM 110-081</b>	
Last Modification Date: 06/18/15	Initials: JHK			<input type="checkbox"/>			No Revisions:			<b>18405</b>			
Full Path: P:\11-039.03\CAD				<input type="checkbox"/>			Revised:			Designer: MKN	Structure Numbers		
Drawing File Name: 11-039.03_TABULATIONS 13-16.dwg				<input type="checkbox"/>			Void:			Detailer: JHK			
AutoCAD 2014	Scale: AS SHOWN			<input type="checkbox"/>				Sheet Subset: GENERAL	Subset Sheets: G-14	<b>Sheet Number: 14</b>			

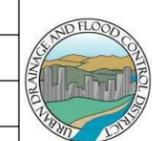
## TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS

STATION	SIDE	REMOVAL OF TREE	REMOVAL OF PEDESTRIAN RAIL	RESET MAILBOX STRUCTURE	REMOVE GROUND SIGN	REMOVE SIGN (SPECIAL)	REMOVE AND RESET TRAFFIC SIGNAL POLE	REMOVE AND RESET WHEEL STOP	REMOVE AND RESET MISC.	REMOVAL OF RIPRAP	REMOVAL OF WALL	REMOVAL OF CONCRETE BOX CULVERT	REMOVAL OF STRUCTURE	REMOVAL OF CURB AND GUTTER	REMOVAL OF CONCRETE PAVEMENT	COMMENTS
		EA	LF	EA	EA	EA	EA	EA	EA	SY	LF	EA	EA	LF	SY	
WC 212+55	RT				1											SOUTH EAST CORNER OF KALMIA CBC
WC 212+71	LF										12					SOUTH WEST CORNER OF KALMIA CBC
WC 212+75	RT & LT											1				KALMIA BOX CULVERT
WC 212+81	RT				1											NORTH EAST CORNER OF KALMIA CBC
WC 212+87 TO 214+91	RT														365	WALK NORTH OF KALMIA
WC 212+99	RT													75		NORTH SIDE OF KALMIA
WC 213+00	RT				1											NORTH EAST CORNER OF KALMIA CBC
WC 213+09	RT										11					NORTH EAST CORNER OF KALMIA CBC
WC 213+40	LT										14					NORTH WEST CORNER OF KALMIA CBC
WC 213+54	RT				1											NORTH OF KALMIA
WC 218+64 TO 225+88	RT														1,054	TRAIL EAST OF 28TH
WC 221+43	RT									18						MANOR CARE OUTFALL
WC 221+80 TO 224+30	RT										247					ROCK WALL ALONG MANOR CARE
WC 222+95 TO 224+94	RT													394		MANOR CARE PARKING LOT
WC 224+40 TO 224+99	LT										57					ROCK WALL AROUND MANOR CARE SIGN
WC 224+76	LT					1										MANOR CARE SIGN
WC 224+86	RT														11	PAN IN MANOR CARE PARKING LOT
WC 226+33	LT										27					WALL AROUND CENTURYLINK PEDESTAL
WC 226+48 TO 229+73	RT & LT													410		SOUTH SIDE OF WINDING TRAIL
WC 226+52 TO 229+64	RT														177	SOUTH SIDE OF WINDING TRAIL WALK
WC 226+59	RT										27					WALL AROUND CENTURYLINK PEDESTAL
WC 226+60	RT						1									POLE ON SOUTH WEST CORNER
WC 226+65	LT										25					EX 28TH CBC WINGWALL
WC 226+71 TO 229+41	RT & LT														91	EX CHANNEL CONCRETE PAN
WC 226+74	RT				1											SIGN AT ENTRANCE TO WINDING TRAIL
WC 226+82	RT										24					2 STORM SEWER OUTFALL WALLS
WC 227+76	RT				1											SOUTH SIDE OF WINDING TRAIL DR.
WC 228+20	LT													17	3	AT WATER LINE IRRIGATION TAP
WC 228+30	LT				1											DOG PARK SIGN. RELOCATE TO SOUTH
WC 228+44 TO 229+66	LT														153	TRAIL BETWEEN CONDOS
WC 228+90 TO 229+33	RT										35					NORTH EAST WINGWALL
WC 229+11	LT				1											SIGN OFF OF TRAIL TO CONDOS
WC 229+15	RT				1											SOUTH SIDE OF WINDING TRAIL DR.
WC 229+16 TO 229+43	LT														10	POND PAN
WC 229+41 TO 229+49	LT										12					SOUTH EAST WINGWALL
WC 229+56	LT				3											WEST OF CBC SOUTH SIDE
WC 229+60	RT & LT											1				WINDING TRAIL CBC
WC 229+56 TO 230+03	RT & LT													138	62	NORTH SIDE OF WINDING TRAIL
WC 229+93 TO 230+12	RT										20					NORTH WEST WINGWALL
WC 229+93 TO 230+20	RT										20					NORTH WEST CHANNEL RETAINING WALL
WC 230+02 TO 231+12	LT														138	TRAIL WEST SIDE OF CHANNEL
WC 230+03	LT				3											WEST OF CBC NORTH SIDE
WC 230+07 TO 230+13	LT										13					SOUTH WEST WINGWALL
WC 230+07 TO 230+68	LT										65					SOUTH WEST CHANNEL RETAINING WALL
WC 230+10 TO 230+34	LT														8	POND PAN
WC 230+11	RT & LT														72	PAN IN AT UPSTREAM EDGE OF CBC
WC 230+42	LT				1											
<b>TOTALS</b>		<b>463</b>	<b>68</b>	<b>1</b>	<b>28</b>	<b>1</b>	<b>1</b>	<b>8</b>	<b>4</b>	<b>49</b>	<b>810</b>	<b>4</b>	<b>2</b>	<b>3,570</b>	<b>4,966</b>	

**NOTES:**

1. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.
2. BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

PLOTTED: 6/19/2015 10:13:07 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 13-16.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>						WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS</b>		Project No./Code <b>STM 110-081</b>			
Creation Date: 05/28/15	Initials: JHK			Date:	Comments:	Init.	No Revisions:	  				Designer: MKN		Structure Numbers		Sheet Number: <b>15</b>	
Last Modification Date: 06/18/15	Initials: JHK			Void:	Revised:	Designer: JHK Detailer: JHK											
Full Path: P:\11-039.03\CAD						Sheet Subset: GENERAL Subset Sheets: G-15											
Drawing File Name: 11-039.03_TABULATIONS 13-16.dwg																	
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03															

### TABULATION OF SURFACING QUANTITIES

STATION	SIDE	REMOVAL OF ASPHALT MAT	REMOVAL OF ASPHALT MAT (PLANING)	HOT MIX ASPHALT		AGGREGATE BASE COURSE (CLASS 6)	GEOTEXTILE (DRAINAGE) (CLASS 2)	COMMENTS
				GRADING S (75) (PG 64-22)	GRADING SX (75) (PG 64-22)			
				BOTTOM LIFT 3"	TOP LIFT 2"			
		SY	SY	TON	TON	CY	SY	
BWRD 11+16	RT	23		4	2.5	7		WATER LINE IRRIGATION TAP
BWRD 11+31 TO 11+48	RT & LT					15	90	BWRD MAINTENANCE ACCESS
WC 52+36 TO 53+22	LT	686						APARTMENT PARKING LOT
WC 52+47 TO 53+22	LT			80	53	148		APARTMENT PARKING LOT
WC 51+76 TO 53+74	RT	345						TALISMAN
WC 51+76 TO 53+73	RT			52	35	96		TALISMAN & NORTH SIDE OF SPRING CREEK
WC 53+74 TO 54+21	LT	130						SOUTH OF SPRING CREEK PLACE
WC 53+74 TO 54+20	LT			29	20	54		SOUTH OF SPRING CREEK PLACE
WC 61+70 TO 71+29	RT & LT	2,598						IRIS AVE PLUS 34TH
WC 61+70 TO 66+71	RT & LT			295	197	546		IRIS AVE PLUS 34TH
WC 62+53	LT	20		3	2	6		WATER LINE IRRIGATION TAP ON 34TH
WC 63+51 TO 63+74	RT	59		7	5	13		DRIVE 4
WC 63+95 TO 64+03	RT	26		2	2	4		DRIVE 3
WC 64+90 TO 65+34	RT	73		10	7	19		DRIVE 2
WC 65+66 TO 66+01	LT	72		12	8	22		BRIDGER TRAIL
WC 65+97 TO 66+46	RT	106		12	8	22		DRIVE 1
WC 66+71 TO 71+29	LT		1,468		162			IRIS AVE
WC 71+98	LT	7		1	1	2		WATER LINE IRRIGATION TAP AT BANK ACCESS
WC 203+68 TO 211+20	RT & LT	3,195		529	353	979		FIRE ACCESS ROAD
WC 211+34 TO 212+61	RT	70		12	8	21		ISLAND DRIVE
WC 211+87 TO 213+45	LT	498		82	55	152		APARTMENT ACCESS DRIVE
WC 212+52 TO 213+21	RT & LT	286		47	31	87		KALMIA AVE
WC 222+85 TO 224+93	RT	1,600		264	176	489		MANOR CARE PARKING LOT
WC 225+48 TO 226+51	RT & LT	578		191	64	161		28TH STREET. BOTTOM LIFT @ 6"
WC 226+52 TO 230+00	RT & LT	712		117	78	198		WINDING TRAIL DRIVE
WC 228+20	LT	9		1.5	1	3		WATER LINE IRRIGATION TAP SOUTH OF CONDOS
<b>TOTALS</b>		<b>11,093</b>	<b>1,468</b>	<b>1,751</b>	<b>1,269</b>	<b>3,044</b>	<b>90</b>	

**NOTES:**

1. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.
2. BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

PLOTTED: 6/19/2015 10:13:09 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 13-16.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		Project No./Code			
Creation Date: 05/28/15	Initials: JHK	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4+100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03		Date: _____		No Revisions:		TABULATION OF SURFACING QUANTITIES		STM 110-081			
Last Modification Date: 06/18/15	Initials: JHK			Comments: _____		Revised:		Region 4 RDM		Designer: MKN		Structure Numbers	
Full Path: P:\11-039.03\CAD				Init: _____		Void:		18405		Detailer: JHK		Sheet Number: 16	
Drawing File Name: 11-039.03_TABULATIONS 13-16.dwg				_____		_____		G-16		Sheet Subset: GENERAL		Subset Sheets:	
AutoCAD 2014	Scale: AS SHOWN												

**TABULATION OF CONCRETE SURFACING QUANTITIES**

STATION	SIDE	CONCRETE SIDEWALK	CONCRETE SIDEWALK (COLORED)	CONCRETE CURB RAMP	CURB AND GUTTER TYPE 2 (SECTION II-B) (SPECIAL)	CURB AND GUTTER TYPE 2 (SECTION I-B)	CURB TYPE 2 (SECTION B)	GUTTER TYPE 2				CONCRETE PAVEMENT (8 INCH) (SPECIAL)	COMMENTS
								3 FOOT	4 FOOT	5 FOOT	8 FOOT		
		SY	SY	SY	LF	LF	LF	LF	LF	LF	LF	SY	
BWRD 10+00 TO 14+81	LT		88										WALL 1 PAN
BWRD 11+11	RT				10								AT WATERLINE IRRIGATION TAP
BWRD 11+41 TO 13+71	RT	365											BWRD TRAIL
BWRD 11+42	RT			11	22								TALISMAN RAMP
BWRD 12+91 TO 14+12	LT		26										SHOULDER ON SOUTH UNDER BNSF
BWRD 14+26 TO 14+81	LT	480											TRAIL UNDER BNSF
BWRD 14+26 TO 14+11	LT		25										SHOULDER ON NORTH
BWRD 14+45 TO 15+70	LT	79											TIE IN TO EX TRAIL TO SOUTH
BWRD 14+49 TO 14+93	RT	84											PARK TRAIL
BWRD 14+72	RT		2										SHOULDER AT BWRD PED CROSSING
BWRD 14+82	RT		2										SHOULDER AT BWRD PED CROSSING
BWRD 14+82	LT		1										SHOULDER AT BWRD PED CROSSING
BWRD 15+68	LT				24								AT UCAR ACCESS
WC 51+48 TO 62+35	RT & LT	1,630											MAIN TRAIL BWRD PED CROSSING TO 34TH
WC 51+76 TO 52+55	RT				78								TALISMAN CURB
WC 52+34 TO 53+10	LT	67											APARTMENT PARKING LOT
WC 52+55 TO 53+35	RT							67					PAN BEHIND WALL 3
WC 52+96 TO 53+00	LT					56							APARTMENT PARKING LOT
WC 52+96 TO 53+22	LT				128								APARTMENT PARKING LOT
WC 53+10 TO 53+13	LT				77								APARTMENT PARKING LOT
WC 53+12 TO 53+20	LT										40		APARTMENT PARKING LOT
WC 53+15 TO 53+19	LT					34							APARTMENT PARKING LOT
WC 53+23 TO 53+75	LT	85											WALK FROM PARKING LOT TO SPRING CREEK
WC 53+69	LT		5										COLORED ISLAND AT SPRING CREEK
WC 53+74 TO 53+90	RT	43											WALK FROM SPRING CREEK TO TALISMAN
WC 53+78	RT		7										COLORED ISLAND AT SPRING CREEK
WC 54+10	LT				4								WEST SIDE OF SPRING CREEK
WC 54+19	LT					9							WEST SIDE OF SPRING CREEK
WC 54+62 TO 55+08	RT		17										ADJACENT TO BOULDER WALL
WC 56+58 TO 60+44	RT		92										ADJACENT TO WALL 7
WC 61+66 TO 62+85	RT				104								ON NORTH EAST CORNER OF IRIS & 34TH
WC 61+70 TO 62+61	RT				87								ON SOUTH EAST CORNER OF IRIS & 34TH
WC 62+41 TO 62+83	RT	71											ON NORTH EAST CORNER OF IRIS & 34TH
WC 62+44	RT			11									RAMP ON SOUTH EAST CORNER OF IRIS & 34TH
WC 62+45	LT				14								34TH STREET EAST SIDE
WC 62+54	RT			15									RAMP ON NORTH EAST CORNER OF IRIS & 34TH
WC 62+62	RT			10									RAMP ON SOUTH EAST CORNER OF IRIS & 34TH
WC 62+79	RT			11									RAMP ON NORTH EAST CORNER OF IRIS & 34TH
WC 62+81 TO 65+65	RT & LT	138			311								ALONG SOUTH SIDE OF IRIS
WC 62+90	RT			6									RAMP ON SOUTH WEST CORNER OF IRIS & 34TH
WC 62+92	RT			10									RAMP ON NORTH WEST CORNER OF IRIS & 34TH
WC 62+97 TO 71+30	RT & LT	996			482	409							ALONG NORTH SIDE OF IRIS
WC 63+10	RT			7									RAMP ON SOUTH WEST CORNER OF IRIS & 34TH
WC 63+10	RT			7									RAMP ON NORTH WEST CORNER OF IRIS & 34TH
WC 63+50	RT				31								DRIVE 4 CURB
WC 63+55	RT										12		DRIVE 4 DRIVEWAY
WC 63+65	RT				31								DRIVE 4 CURB
WC 63+90	RT				10								DRIVE 3 CURB
WC 63+99	RT										12		DRIVE 3 DRIVEWAY
WC 64+04	RT				10								DRIVE 3 CURB

PLOTTED: 6/19/2015 10:13:25 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 17-24.DWG

Computer File Information	
Creation Date: 05/30/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_TABULATIONS 17-24.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4+100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

**As Constructed**

No Revisions:

Revised:

Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		
TABULATION OF CONCRETE SURFACING QUANTITIES		
Designer: MKN	Structure Numbers	
Detailer: JHK		
Sheet Subset: GENERAL	Subset Sheets: G-17	

Project No./Code	STM 110-081
	18405
Sheet Number:	17

## TABULATION OF CONCRETE SURFACING QUANTITIES

STATION	SIDE	CONCRETE SIDEWALK	CONCRETE SIDEWALK (COLORED)	CONCRETE CURB RAMP	CURB AND GUTTER TYPE 2 (SECTION II-B) (SPECIAL)	CURB AND GUTTER TYPE 2 (SECTION I-B)	CURB TYPE 2 (SECTION B)	GUTTER TYPE 2				CONCRETE PAVEMENT (8 INCH) (SPECIAL)	COMMENTS
								3 FOOT	4 FOOT	5 FOOT	8 FOOT		
		SY	SY	SY	LF	LF	LF	LF	LF	LF	LF	SY	
WC 64+30 TO 64+90	RT						65						DRIVE 2 CURB
WC 65+01	RT											81	DRIVE 2 DRIVEWAY
WC 65+21	RT	12					43						DRIVE 2 CURB & WALK
WC 65+58 TO 66+22	LT										33	19	BRIDGER AND IRIS PAN
WC 65+62	LT			7									RAMP ON SOUTH EAST CORNER OF BRIDGER AND IRIS
WC 65+71	RT	13											WALK BETWEEN DRIVE 1 AND 2
WC 65+95 TO 66+29	LT	27											SOUTH WEST CORNER OF BRIDGER AND IRIS
WC 65+96 TO 66+57	LT				70								SOUTH WEST CORNER OF BRIDGER AND IRIS
WC 65+96	RT				29								DRIVE 1 CURB
WC 65+98	RT							17				15	DRIVE 1 DRIVEWAY
WC 66+14	RT				44								DRIVE 1 CURB
WC 66+44	RT				14								DRIVE 1 CURB
WC 66+12	LT			7									RAMP ON SOUTH WEST CORNER OF BRIDGER AND IRIS
WC 71+35	LT			14									RAMP AT BANK ACCESS
WC 71+46 TO 71+50	LT						29					7	AT BANK ACCESS ISLAND
WC 71+50 TO 73+00	LT	473											WALK FROM BANK ACCESS TO 30TH
WC 71+50	LT			17									RAMP AT BANK ACCESS
WC 71+52	LT				28								AT FIRE HYDRANT AND TYPE D INLET
WC 71+97	LT				10								AT IRRIGATION WATER LINE TAP
WC 202+67 TO 204+59	LT	294											WALK AT PARKING LOT LEVEL
WC 202+95	LT		8										COLORED CONCRETE ISLAND
WC 203+16 TO 204+87	LT	188											WALK TO UNDERPASS
WC 203+82 TO 204+02	LT								5				PARKING LOT PAN
WC 203+97 TO 204+21	LT				18								SOUTH OF WALL 12
WC 204+57 TO 204+86	LT				8			35					AT RAMP
WC 204+65	LT			16									RAMP ON EAST SIDE OF FIRE ACCESS
WC 205+07	LT			14									RAMP ON WEST SIDE OF FIRE ACCESS
WC 205+11 TO 209+18	LT	642											WEST OF FIRE ACCESS INCL. UNDERPASS
WC 205+17 TO 206+78	LT		47										BETWEEN WALK AND PARKING LOT
WC 205+19 TO 206+63	LT				160								PARKING LOT
WC 205+79 TO 206+47	LT		17										WALL 14 COLORED CONCRETE SHOULDER
WC 208+58 TO 212+16	LT	342											FIRE ACCESS ROAD AND AREA CONCRETE
WC 208+61	LT	5											DOG PARK ENTRANCE
WC 209+33 TO 212+52	RT	473											WALK BETWEEN PEDESTRIAN BRIDGE AND KALMIA
WC 210+55 TO 212+00	RT		41										ADJACENT TO WALL 16
WC 211+32 TO 212+55	RT				34								ENTRANCE TO FIRE ACCESS ROAD
WC 211+34	RT			7									EAST SIDE OF ISLAND DRIVE
WC 211+36	RT	6											EAST SIDE OF ISLAND DRIVE
WC 212+31 TO 212+53	RT		7										ADJACENT TO WALL 17
WC 212+47 TO 212+61	RT				37								ISLAND DRIVE
WC 212+51	RT			5									WEST SIDE ISLAND DRIVE
WC 212+54	RT			7									SOUTH SIDE OF KALMIA
WC 212+89	RT			11									NORTH SIDE OF KALMIA
WC 212+91 TO 213+31	RT & LT				70								NORTH SIDE OF KALMIA
WC 212+91 TO 214+91	RT	604											WALK ON NORTH SIDE OF KALMIA
WC 213+16 TO 214+15	RT		29										ADJACENT TO WALL 19
WC 213+26 TO 214+46	RT		27										ADJACENT TO WALL 21
WC 218+56 TO 225+50	RT	790											MAIN TRAIL EAST OF 28TH
WC 221+04 TO 225+26	RT		160										ADJACENT TO WALL 22
WC 224+98 TO 225+23	RT		43										PAN ADJACENT TO TRAIL

PLOTTED: 6/19/2015 10:13:29 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 17-24.DWG

Computer File Information	
Creation Date: 05/30/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_TABULATIONS 17-24.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed

No Revisions:

Revised:

Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>TABULATION OF CONCRETE SURFACING QUANTITIES</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	GENERAL	Subset Sheets:	G-18

Project No./Code	STM 110-081
	18405
Sheet Number:	18

### TABULATION OF CONCRETE SURFACING QUANTITIES

STATION	SIDE	CONCRETE SIDEWALK	CONCRETE SIDEWALK (COLORED)	CONCRETE CURB RAMP	CURB AND GUTTER TYPE 2 (SECTION II-B) (SPECIAL)	CURB AND GUTTER TYPE 2 (SECTION I-B)	CURB TYPE 2 (SECTION B)	GUTTER TYPE 2				CONCRETE PAVEMENT (8 INCH) (SPECIAL)	COMMENTS
								3 FOOT	4 FOOT	5 FOOT	8 FOOT		
		SY	SY	SY	LF	LF	LF	LF	LF	LF	LF	SY	
WC 222+81 TO 224+94	RT				367								MANOR CARE CURB AND GUTTER
WC 222+76 TO 225+80	RT	467											28TH STREET TRAIL
WC 224+82 TO 224+89	RT							32					MANOR CARE PARKING LOT
WC 225+31 TO 225+51	RT		4										ADJACENT TO TRAIL AT 28TH CBC
WC 225+74	RT			6									28TH AND PALO
WC 225+79	RT		19										28TH AND PALO
WC 225+81	RT			11									28TH AND PALO
WC 226+07 TO 229+68	RT & LT	569											TRAIL ALONG 28TH AND WINDING TRAIL
WC 226+14 TO 229+74	RT & LT				503								SOUTH SIDE OF WINDING TRAIL, INCL. 28TH
WC 226+17 TO 226+69	RT & LT		31										ADJACENT TO WALL 26, 28TH SIDE
WC 226+60	RT			11									28TH AND WINDING TRAIL
WC 226+64 TO 227+36	RT		22										ADJACENT TO WALL 28
WC 226+65 TO 227+56	RT	64											TRAIL FROM UNDERPASS TO PED CROSSING
WC 226+66	LT										6		RECONSTRUCT ENTRANCE PAD TO EX CBC
WC 226+69 TO 226+82	RT		4										ADJACENT TO TRAIL AT 28TH CBC
WC 226+74	RT			11									28TH AND WINDING TRAIL
WC 227+35 TO 227+62	RT		9										AT WINDING TRAIL PEDESTRIAN CROSSING
WC 227+55 TO 227+98	LT		13										AT WINDING TRAIL PEDESTRIAN CROSSING
WC 227+61 TO 229+68	LT	229											TRAIL FROM PED CROSSING TO WINDING TRAIL
WC 228+20	LT				17					6			AT IRRIGATION WATERLINE TAP LOCATION
WC 228+27 TO 228+71	LT	93											BIRCHWOOD DRIVE TRAIL
WC 228+53 TO 229+05	LT		20										ADJACENT TO WALL 32
WC 229+26 TO 229+47	RT & LT		37										OVER WINDING TRAIL CBC
WC 229+66 TO 229+74	LT							8					PAN FROM WINDING TRAIL TO WATER QUALITY POND
WC 229+67	LT			12									ON SOUTH SIDE OF WINDING TRAIL
WC 229+56 TO 230+01	RT & LT	49			138								NORTH SIDE OF WINDING TRAIL
WC 230+02	LT			12									ON NORTH SIDE OF WINDING TRAIL
WC 230+04 TO 231+10	LT	140											WALK NORTH OF WINDING TRAIL
<b>TOTALS</b>		<b>9,518</b>	<b>803</b>	<b>256</b>	<b>2,970</b>	<b>537</b>	<b>108</b>	<b>159</b>	<b>5</b>	<b>6</b>	<b>73</b>	<b>152</b>	

**NOTES:**

1. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.
2. BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

PLOTTED: 6/19/2015 10:13:33 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 17-24.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT				Project No./Code			
Creation Date: 05/30/15	Initials: JHK	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03		37254 6/18/15 PROFESSIONAL ENGINEER		Date: _____ Comments: _____ Init.: _____		No Revisions: _____ Revised: _____ Void: _____		Region 4 RDM		CITY OF BOULDER		STM 110-081	
Last Modification Date: 06/18/15	Initials: JHK													18405	
Full Path: P:\11-039.03\CAD														Sheet Number: 19	
Drawing File Name: 11-039.03_TABULATIONS 17-24.dwg															
AutoCAD 2014	Scale: AS SHOWN									G-19		Sheet Number: 19			

### TABULATION OF CONCRETE STRUCTURE QUANTITIES

STRUCTURE IDENTIFICATION #	CONCRETE CLASS D				MANHOLE 4' DIA, H=5'	PRECAST CBC			DRILLED CAISSON (42 INCH)	STRUCTURAL CONCRETE COATING	FILTER MATERIAL (CLASS A)	GEOTEXTILE (SEPARATOR) (CLASS 2)	PEDESTRIAN RAILING (STEEL) (SPECIAL)	HAND RAIL	DELINEATOR (FLEXIBLE)	WATERPROOFING (MEMBRANE)	IRRIGATION DIVERSION STRUCTURE	BNSF CANOPY	RESTRICTOR PLATE	F/A RAILROAD FLAGGING	BRIDGE GIRDER AND DECK UNIT (85 FEET TO 90 FEET)	COMMENTS
	BOX CULVERT	WALL	SPECIAL (COLORED)	9X4.5 FOOT		12X5.5 FOOT	16X10 FOOT	LF														
RESTRICTOR PLATE					EA														1			
BNSF TRAIL CANOPY																		1				
BNSF BRIDGE																				30		
WONDERLAND CREEK SPILLWAY	58																					
BWRD PEDESTRIAN CROSSING		64		9						35	12		99									COAT WALLS INSIDE CBC
BWRD TURNOUT STRUCTURE	100									80	22						1					
SPRING CREEK PLACE		435		27						120	160	469	196									SPRING CREEK RAIL
EX. 34TH STREET BOX CULVERT				4						90						156						COAT WALLS + 10' INSIDE CBC + HEADWALL
IRIS BOX CULVERT		73		2	3			836		125	30		56	34								COAT HEADWALL + 20' INSIDE CBC
BRIDGER TRAIL BOX CULVERT			24	2			344			150	10		64									COAT HEADWALL + 20' INSIDE CBC
FIRE ACCESS BRIDGE										145												COAT CBC WALLS
KALMIA PEDESTRIAN BRIDGE	109								224	95											1	86' BRIDGE
KALMIA AVE. BOX CULVERT	25	285		15						360				80								INCL. TRAIL IN CBC. COAT PED CBC + 20' INSIDE OTHER 2 CBC CELLS WALLS + HEADWALL
28TH STREET CULVERT	44	220	12	29				176		660			87			37						INCL. TRAIL IN CBC. COAT PED CBC + 20' INSIDE OTHER 2 CBC CELLS WALLS + HEADWALL
WINDING TRAIL PEDESTRIAN CROSSING	10	49		12						10	20					6						COAT WALLS
WINDING TRAIL CULVERT		347		3						165			105									COAT HEADWALL + 20' INSIDE CBC WALLS
<b>TOTALS</b>	<b>346</b>	<b>1,473</b>	<b>343</b>	<b>103</b>	<b>3</b>	<b>344</b>	<b>836</b>	<b>176</b>	<b>224</b>	<b>2,035</b>	<b>254</b>	<b>469</b>	<b>607</b>	<b>270</b>	<b>6</b>	<b>37</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>30</b>	<b>1</b>	

PLOTTED: 6/19/2015 10:13:36 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 17-24.DWG

Computer File Information	
Creation Date: 05/30/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_TABULATIONS 17-24.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

**As Constructed**

No Revisions:

Revised:

Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT	
<b>TABULATION OF CONCRETE STRUCTURE QUANTITIES</b>	
Designer: MKN	Structure Numbers
Detailer: JHK	
Sheet Subset: GENERAL	Subset Sheets: G-20

Project No./Code	STM 110-081
	18405
Sheet Number:	20

## TABULATION OF CONCRETE WALL QUANTITIES

STRUCTURE IDENTIFICATION #	STATION	SIDE	CONCRETE CLASS D (WALL)	CONCRETE CLASS D (SPECIAL) (COLORED)	DRILLED CAISSON (42 INCH)	STRUCTURAL BACKFILL (CLASS 1)	FILTER MATERIAL		GEOTEXTILE (DRAINAGE) (CLASS 2)	STRUCTURAL CONCRETE COATING	PEDESTRIAN RAILING (STEEL) (SPECIAL)	HAND RAIL	BRIDGE RAIL TYPE 10 (MODIFIED)	CURB (COMPOSITE MATERIAL)	4 INCH PLASTIC PIPE	4 INCH PERFORATED PIPE UNDERDRAIN (SPECIAL)	COMMENTS
			CY	CY			CLASS A	CLASS B									
WALL 1	BWRD 9+28 TO 14+59	LT	167	11		211	39			100							
WALL 2	WC 52+89 TO 53+21	LT	30	3		146	7	3	19	22	57				2	43	
WALL 3	WC 52+54 TO 53+36	RT	37	2		87	8	4	26	28			69	80	2	59	
WALL 4	WC 54+16 TO 54+36	LT	25	1		80	5	4	21	16	34				2	24	
WALL 5	WC 54+12 TO 54+86	RT	37	4		191	8	6	38	23	68				2	57	
STORM SEWER OUTFALL	WC 56+21	RT	2.0							5							STORM SEWER 5 TOE WALL
WALL 7	WC 56+60 TO 60+42	RT	218	13		790	65	42	254	172	413				28	411	
WALL 8	WC 59+64 TO 62+27	RT	225	31		1428	49	40	239	207	266				25	240	
WALL 9	WC 66+85 TO 67+03	RT	20	2		71	5			14	24						
WALL 10	WC 66+84 TO 67+63	LT	56	4		293	14	11	67	30	68				2	60	
WALL 11	WC 69+01 TO 70+54	LT	110	10		741	26	29	174	62	165				28	157	
STORM SEWER OUTFALL	WC 70+39	RT	2														STORM SEWER 13 TOE WALL
WALL 12	WC 203+86 TO 204+72	LT	51	5		296	13	8	50	36	87				28	75	
WALL 13	WC 205+19 TO 206+47	LT	71	7		415	19	13	79	47	125				34	122	
WALL 14	WC 205+72 TO 212+59	LT	718	29		3196	141	154	875	568	660				10	648	
STORM SEWER INLET	WC 207+94	LT	4							7	17						STORM SEWER 17 HEAD WALL
WALL 15	WC 209+49 TO 211+99	RT	191	12		1020	41	41	248	161	215				6	231	
WALL 16	WC 210+58 TO 212+47	RT	64	6	754	100	10	26	15	74	180				48	168	WALL CONC. INCLUDES CAISSON FASCIA
WALL 17	WC 212+33 TO 212+53	RT	12	1		36	3			14							
WALL 18	WC 213+29 TO 213+49	LT	32	1		120	6	5	29	18	24				2	22	
WALL 19	WC 213+18 TO 214+14	RT	55	3		184	14			63							
WALL 20	WC 213+07 TO 213+83	RT	58	5		273	14	9	57	47	83				37	85	
WALL 21	WC 213+28 TO 241+45	RT	78	4		247	19	9	54	47	119				30	121	
WALL 22	WC 221+06 TO 225+26	RT	584	19		1940	119	163	976	428	582				59	564	
WALL 23	WC 222+91 TO 225+44	RT	122	15		673	35	8	33	63	269				4	212	
WALL 24	WC 224+48 TO 225+37	LT	149	3		490	23	26	156	111	86				2	70	
WALL 25	WC 225+51 TO 225+18	RT	48	2		171	10	10	58	40	52				18	52	
WALL 26	WC 226+20 TO 226+69	LT	78	4		82	26			219							SOUND WALL
WALL 27	WC 226+69 TO 229+26	RT	429	12		1969	62	92	553	305	251				4	248	
WALL 28	WC 226+64 TO 227+30	RT	32	2		110	9			33		40					
WALL 29	WC 226+57 TO 226+61	LT	24	1		85	5	10	70	23	21				2	78	INCL. HEADWALL DRAIN QUANTITIES
WALL 30	WC 227+05 TO 228+38	LT	97	1		288	24	17	101	89	160				2	151	
EX 28TH CBC WALL	WC 226+61 TO 227+05	LT		3							71						
WALL 31	WC 227+88 TO 229+47	LT	105	11		490	27	16	93	83	182				4	176	
WALL 32	WC 228+56 TO 229+03	LT	40	3		100	11	5	28	16					16	84	
WATER QUALITY POND	WC 229+16	LT	0.5														WINDING TRAIL WATER QUALITY POND 1
STORM SEWER OUTFALL	WC 230+10	LT	1.0							3							STORM SEWER 28 TOE WALL
WATER QUALITY POND	WC 230+40	LT	0.5														WINDING TRAIL WATER QUALITY POND 1
WALL 33	WC 230+09 TO 230+26	LT	17	1		54	4	2	15	11	24				2	22	
WALL 34	WC 230+11 TO 230+68	LT	29			77	8			18							
WALL 35	WC 229+93 TO 230+12	RT	17	1		57	3			6	19						
WALL 36	WC 229+93 TO 230+20	RT	11			28	3			5							
<b>TOTALS</b>			<b>4,047</b>	<b>232</b>	<b>754</b>	<b>16,539</b>	<b>875</b>	<b>753</b>	<b>4,328</b>	<b>3,214</b>	<b>4,322</b>	<b>40</b>	<b>69</b>	<b>80</b>	<b>399</b>	<b>4,180</b>	

- NOTES:**  
 1. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.  
 2. BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

PLOTTED: 6/19/2015 10:13:39 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD11-039.03\_TABULATIONS 17-24.DWG

<b>Computer File Information</b> Creation Date: 05/30/15 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_TABULATIONS 17-24.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: _____ Comments: _____ Init.: _____ _____ _____ _____		<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>TABULATION OF CONCRETE WALL QUANTITIES</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: GENERAL Subset Sheets: G-21			Project No./Code STM 110-081 18405 Sheet Number: 21	
--	--	---	--	--	--	---	--	---	--	---	--	--	--	--	--	--	--

TABULATION OF DRAINAGE REMOVAL QUANTITIES

STATION	OFFSET	REMOVAL OF INLET	REMOVAL OF MANHOLE	REMOVE PIPE	PLUG CULVERT	COMMENTS
		EA	EA	LF	EA	
BWRD 14+37.34	242.15 LT			37		30" RCP (STORM LINE 1)
WC 53+58.61	25.81 LT					
TO				30		12" CMP
WC 53+87.13	36.41 LT	1				VANE GRATE
WC 54+14.61	19.68 LT			26		18" RCP
WC 56+21.23	22.23 RT			60		12" PVC
WC 62+66.97	16.70 RT				1	PATCH 34TH STREET CULVERT
TO				67		15" RCP
WC 62+83.64	83.82 RT		1			
TO				34		15" RCP
WC 62+92.4	119.07 RT					
WC 62+83.64	83.82 RT*					
TO				43		18" RCP
WC 62+30.51	96.59 RT	1		8		5' TYPE R, 4" PVC
TO				8		12" RCP
WC 61+68.98	98.16 RT					
WC 62+83.64	83.82 RT*					
TO				62		18" RCP
WC 63+41.83	76.69 RT	1				5' TYPE R
TO				36		6" PVC
WC 63+79.27	90.25 RT					
WC 63+37.37	32.26 RT	1				10' TYPE R, SOUTH SIDE OF IRIS
WC 64+93.90	16.54 LT			8		15" RCP, SOUTH BANK
WC 65+29.88	3.38 LT					
TO				77		30" X 42" CMP
WC 66+05.85	6.66 RT		1			
TO				196		30" X 42" CMP
WC 68+16.53	50.40 LT					
WC 70+36.97	20.92RT			10		18" RCP
WC 71+51.81	186.49 LT			5		12" STEEL
WC 203+90.38	32.12 LT			104		(4) 8" PVC
WC 205+77.41	10.48 LT			111		(4) 8" PVC
WC 207+94.66	9.63 LT			20		24" CMP
WC 211+03.32	21.17 LT			6		3" PVC
WC 211+98.21	29.07 RT			8		6" PVC
WC 212+08.64	6.17 LT			16		6" PVC

TABULATION OF DRAINAGE REMOVAL QUANTITIES

STATION	OFFSET	REMOVAL OF INLET	REMOVAL OF MANHOLE	REMOVE PIPE	PLUG CULVERT	COMMENTS
		EA	EA	LF	EA	
WC 213+13.60	37.94 RT					
TO				148		36" RCP
WC 212+57.75	161.88 RT	1				10' TYPE R
TO				36		36" RCP
WC 211+36.20	195.73 RT	1				10' TYPE R
TO				8		(36" RCP) INCLUDES END SECTION
WC 211+33.69	201.62 RT					
WC 214+09.06	4.29 RT			55		(18" RCP) INCLUDES END SECTION - POSSIBLE TOWN HOME STORM SEWER
WC 218+80.80	12.59 RT					
TO				80		(18" RCP) INCLUDES END SECTION - POSSIBLE TOWN HOME STORM SEWER
WC 219+66.28	37.02 RT		1			POSSIBLE TOWN HOME STORM SEWER MANHOLE
TO				30		(18" RCP) - POSSIBLE TOWN HOME STORM SEWER
WC 219+80.66	63.39 RT		1			POSSIBLE TOWN HOME STORM SEWER MANHOLE
WC 222+33.50	8.69RT			17		8" PVC
WC 225+64.47	52.74 RT			7		(24" RCP) INCLUDES END SECTION
WC 226+68.57	51.77 RT			40		(18" RCP) ABANDON FILL WITH FLOW FILL
WC 226+82.07	26.75 RT		1	30		18" RCP, LOCATION OF MH UNKNOWN
WC 227+03.96	18.00 RT			64		12" RCP
WC 228+22.19	10.19 LT			26		8" PVC
WC 229+18.33	6.65 LT			35		8" PVC
WC 229+44.91	70.88 LT					
TO				24		8" PVC
WC 229+70.65	67.17 LT	1				5' TYPE R
WC 230+02.24	61.35 LT	1				5' TYPE R
TO				12		8" PVC
WC 230+10.03	61.07 LT					
WC 230+28.89	12.36 LT			40		8" PVC
<b>TOTAL</b>		<b>8</b>	<b>5</b>	<b>1624</b>	<b>1</b>	

NOTES:

- \* INDICATES THE PAY QUANTITY COUNTED PREVIOUSLY
- WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.
- BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

PLOTTED: 6/19/2015 10:13:42 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 17-24.DWG

<b>Computer File Information</b> Creation Date: 05/30/15 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_TABULATIONS 17-24.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: Comments Init.		As Constructed No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>TABULATION OF DRAINAGE REMOVAL QUANTITIES</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: GENERAL Subset Sheets: G-22		Project No./Code STM 110-081 18405 Sheet Number: 22	
--	--	---	--	--	--	--	--	--	--	---	--	--	---	--	--	--

### TABULATION OF DRAINAGE STRUCTURE QUANTITIES

STATION	OFFSET	INLET TYPE R (EA)				INLET TYPE 16 (EA)			INLET TYPE C (EA)			INLET TYPE C (SPECIAL) (EA)	INLET TYPE D (SPECIAL) (EA)	MANHOLE (EA)						REINFORCED CONCRETE PIPE						PLASTIC PIPE (LF)		COMMENTS				
		SLAB BASE		FLARED END SECTION (EA)		CIRCULAR (LF)		HERCP	FLARED END SECTION (EA)		PLASTIC PIPE (LF)																					
		DIA = 4'	DIA = 5'	DIA = 6'	12"	18"	24"		30"	36"	23"x14"			15"	18"	24"	30"	36"	6"	12"												
L=5'	L=5'	L=10'	L=15'	SINGLE	TRIPLE	H=5'	H=10'	H=15'	H=10'	H=5'	H=10'	H=15'	H=10'	H=5'	H=10'	H=15'	H=10'	H=15'	12"	18"	24"	30"	36"	23"x14"	15"	18"	24"	30"	36"	6"	12"	
<b>STORM LINE 1</b>																																
BWRD 14+00.67	256.81 LT																															
TO																																
BWRD 14+39.27	241.39 LT																															
<b>STORM LINE 1A</b>																																
BWRD 14+39.27	241.39 LT*																															
TO																																
BWRD 14+43.16	204.40 LT																															
<b>STORM LINE 2</b>																																
WC 53+18.14	26.90 LT																															
TO																																
WC 53+19.38	62.86 LT																															
<b>STORM LINE 3</b>																																
WC 53+79.32	33.10 LT																															
TO																																
WC 54+05.67	54.09 LT																															
<b>STORM LINE 4</b>																																
WC 53+67.79	38.85 RT																															
TO																																
WC 53+67.31	49.48 RT																															
<b>STORM LINE 5</b>																																
WC 56+21.23	22.23 RT																															
TO																																
WC 56+09.14	47.56 RT																															
TO																																
WC 56+05.94	80.37 RT																															
<b>STORM LINE 6</b>																																
WC 62+10.84	40.91 RT																															
TO																																
WC 62+13.15	58.10 RT																															
<b>STORM LINE 7</b>																																
WC 62+95.46	63.89 RT																															
TO																																
WC 62+93.27	79.67 RT																															
TO																																
WC 62+83.64	83.82 RT																															
TO																																
WC 62+91.79	116.65 RT																															
<b>STORM LINE 7.1</b>																																
WC 62+83.64	838.82 RT*																															
TO																																
WC 62+18.56	95.46 RT	1																														
TO																																
WC 62+37.66	106.51 RT																															
<b>STORM LINE 7.2</b>																																
WC 62+82.44	121.63 RT																															
TO																																
WC 62+91.79	116.65 RT*																															
TO																																
WC 62+97.00	118.68 RT																															
<b>BASIN</b>																																
WC 63+79.34	81.45 RT																															
TO																																
WC 63+80.71	91.36 RT																															
<b>STORM LINE 8</b>																																
WC 64+93.27	18.36 LT																															
<b>STORM LINE 9</b>																																
WC 65+14.73	14.73 LT																															
END AT BRIDGER TRAIL BOX CULVERT																																

PLOTTED: 6/19/2015 10:13:45 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 17-24.DWG

Computer File Information	
Creation Date: 05/30/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_TABULATIONS 17-24.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

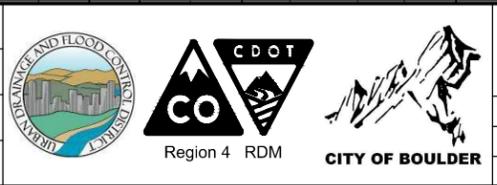
MULLER

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>TABULATION OF DRAINAGE STRUCTURE QUANTITIES</b>			
Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	GENERAL	Subset Sheets:	G-23

Project No./Code	STM 110-081
	18405
Sheet Number:	23





### SANITARY SEWER QUANTITIES

STATION	OFFSET	REMOVE PIPE LF	REMOVAL OF MANHOLE EA	ADJUST MANHOLE EA	MANHOLE (EA)		PLASTIC PIPE (LF)		WELDED STEEL PIPE (LF)		CONCRETE CLASS D CY	COMMENTS
					SLAB BASE DIA = 4'		8"	10"	18"	20"		
					H=10'	H=15'						
<b>SANITARY LINE 1</b>												
BWRD 14+22.80	277.03 LT			1								
BWRD 14+78.79	46.75 RT			1								
TO		129					125		95			EX 8" PVC PIPE
BWRD 14+57.08	57.08 LT					1						
<b>SANITARY LINE 2</b>												
WC 53+35.23	49.39 RT		1		1							
TO		112					113		107			EX 8" PVC PIPE
WC 54+00.17	38.88 LT		1		1							
<b>SANITARY LINE 3</b>												
WC 62+76.10	16.94 RT											CONNECT TO EX PIPE, VERIFY SIZE OF PIPE
TO		48						49	46			EX 10" CLAY PIPE, VERIFY SIZE OF EX
WC 62+87.89	66.05 RT		1		1							
TO		346						74	68			EX 10" CLAY PIPE
WC 63+56.39	51.48 RT					1						
TO								194				
WC 65+62.44	12.74 RT					1						
TO								68	62			
WC 66+25.37	21.50 LT		1		1							
TO		40						38				EX 10" CLAY PIPE
WC 66+64.71	36.30 LT					1						
WC 66+25.37	21.50 LT*											
TO		25						20				EX 8" CLAY PIPE
WC 66+12.96	36.26 LT											CONNECT W/ COUPLER
<b>SANITARY LINE 4</b>												
WC 66+00.59	40.86 RT					1						
TO		40						43	37			SANITARY SEWER SERVICE
WC 65+62.44	12.74 RT*											
<b>SANITARY LINE 5</b>												
WC 228+87.64	39.23 RT		1		1							
TO		87						87		5		EX 8" PVC PIPE, CONCRETE ENCASEMENT
WC 228+65.07	47.12 LT											CONNECT W/ COUPLER
<b>SANITARY LINE 6</b>												
WC 204+17.46	42.76 LT											
TO										1		EX 10" PVC PIPE, PROTECT IN PLACE
WC 204+18.97	30.00 LT											
<b>TOTALS</b>		<b>827</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>7</b>	<b>388</b>	<b>423</b>	<b>239</b>	<b>176</b>	<b>6</b>	

**NOTES:**

1. \* INDICATES THE PAY QUANTITY COUNTED PREVIOUSLY
2. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.
3. BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

PLOTTED: 6/19/2015 10:14:08 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 25-30.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		Project No./Code	
Creation Date: 05/30/15	Initials: JHK			Date:	Comments	Init.	No Revisions:	<b>TABULATION OF UTILITY QUANTITIES</b>		STM 110-081	
Last Modification Date: 06/18/15	Initials: JHK						Revised:			18405	
Full Path: P:\11-039.03\CAD							Void:			Designer: MKN	Structure Numbers
Drawing File Name: 11-039.03_TABULATIONS 25-30.dwg								Detailer: JHK	Subset Sheets:	G-26	
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03						Sheet Subset: GENERAL	G-26		Sheet Number: 26



## TABULATION OF UTILITY REMOVALS, RESETS AND ADJUSTMENTS

STATION	SIDE	BY OTHERS							BY CONTRACTOR		COMMENTS
		FIBER OPTIC CABLE	TELEPHONE LINE	ELECTRIC LINE	CABLE LINE	GAS LINE	RISER, PEDESTAL, POWER POLE, PULL BOX	GAS LINE MARKER	CONTROLLER COMMUNICATION CABLE	REMOVAL OF ABANDONED UTILITY	
		LF	LF	LF	LF	LF	EA	EA	LF	LF	
BWRD 10+07 TO 14+12	LT	109									LEVEL 3 FIBER OPTIC LINE
BWRD 10+09 TO 14+08	LT	134					1			134	COMCAST FIBER OPTIC LINE
BWRD 14+71 TO 14+85	LT									168	UCAR ELEC.
BWRD 14+77 TO 14+89	LT									13	UCAR FIBER / CAMERA CONTROL
WC 56+01 TO 56+82	RT		83	65			2				CENTURYLINK & XCEL
WC 58+16 TO 59+29	LT				113					113	COMCAST
WC 58+57 TO 60+28	RT		205	164	205						CENTURYLINK, XCEL, & COMCAST
WC 61+13 TO 61+30	RT & LT		64							64	CENTURYLINK
WC 61+67 TO 71+21	RT & LT	932					1			932	CENTURYLINK IN IRIS ONLY
WC 62+32 TO 62+46	RT			60	41		1			41	COMCAST, & XCEL POLE
WC 62+43 TO 63+30	RT & LT					216		1			XCEL AT 34TH AND IRIS
WC 64+17 TO 64+33	RT		76	65	65		3			11	CENTURYLINK, XCEL, & COMCAST
WC 65+08 TO 65+32	RT					47					XCEL GAS SERVICE
WC 65+31 TO 66+14	RT					95					XCEL
WC 65+64 TO 66+58	RT	153					1			153	COMCAST
WC 65+99	RT & LT	50								50	CENTURYLINK IN BRIDGER TRAIL
WC 68+04	RT & LT				83					83	COMCAST
WC 68+81 TO 70+92	LT		223				1			223	CENTURYLINK
WC 69+57 TO 69+63	RT & LT					93					XCEL
WC 205+12 TO 205+27	LT		44				1			44	CENTURYLINK
WC 209+12 TO 209+39	RT & LT		100							100	CENTURYLINK
WC 210+64 TO 212+75	LT			221	221						COMCAST & XCEL
WC 212+53 TO 212+62	RT				14						COMCAST AT ISLAND DR.
WC 212+66 TO 212+98	RT & LT					66					XCEL
WC 212+68 TO 212+77	RT					16					XCEL NEAR ISLAND DR.
WC 212+69 TO 212+82	RT			32						32	XCEL NEAR ISLAND DR.
WC 220+31 TO 220+45	RT & LT			80						80	ABANDONED XCEL LINE
WC 221+27	RT & LT			80			1				XCEL MANOR CARE POWER FEED
WC 224+67 TO 225+26	LT			38			1			38	XCEL
WC 226+25 TO 226+51	RT & LT				65					65	COMCAST
WC 226+32 TO 226+59	RT & LT					65					XCEL
WC 226+33 TO 226+79	RT & LT		135				2			135	CENTURYLINK
WC 226+44 TO 226+82	RT & LT			156						156	XCEL
WC 226+63 TO 227+15	RT & LT		108							108	CENTURYLINK
WC 227+18 TO 229+05	LT		206	205	206	205	1			822	CENTURYLINK, XCEL, & COMCAST
WC 228+35 TO 228+37	LT				37					37	COMCAST
WC 228+47 TO 228+61	LT			63							XCEL
WC 229+02 TO 229+36	RT & LT		120							120	COMCAST
WC 229+33 TO 229+61	RT & LT					74					XCEL
WC 229+93 TO 230+05	RT & LT			80						80	XCEL
WC 230+11 TO 230+23	RT & LT								100		
<b>TOTALS</b>		<b>1,378</b>	<b>1,364</b>	<b>1,309</b>	<b>1,050</b>	<b>877</b>	<b>16</b>	<b>1</b>	<b>100</b>	<b>3,802</b>	

**NOTES:**

1. THE REMOVAL OF ABANDONED UTILITIES QUANTITIES ASSUMES THAT ALL ABANDONED UTILITIES WILL BE IN CONFLICT WITH THE PROPOSED WORK. CONTRACTOR SHALL ONLY REMOVE ABANDONED UTILITIES THAT ARE IN DIRECT CONFLICT WITH THE PROPOSED IMPROVEMENTS UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ABANDONED UTILITIES SHALL BE REMOVED A MINIMUM DISTANCE OF 2 FEET AWAY FROM PROPOSED IMPROVEMENTS OR FINISHED GRADE. REMOVED UTILITY LINES SHALL BECOME PROPERTY OF THE CONTRACTOR.
2. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.      3. BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

PLOTTED: 6/22/2015 9:08:45 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 25-30.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			Project No./Code			
Creation Date: 05/30/15      Initials: JHK		CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4+100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03		Date:      Comments      Init.		No Revisions:		Region 4 RDM			TABULATION OF UTILITY QUANTITIES		STM 110-081	
Last Modification Date: 06/18/15      Initials: JHK				Date:      Comments      Init.		Revised:					Designer: MKN      Structure Numbers		18405	
Full Path: P:\11-039.03\CAD				Date:      Comments      Init.		Void:					Detailer: JHK		Sheet Number: 28	
Drawing File Name: 11-039.03_TABULATIONS 25-30.dwg				Date:      Comments      Init.							Sheet Subset: GENERAL      Subset Sheets: G-28		Sheet Number: 28	
AutoCAD 2014      Scale: AS SHOWN														

TABULATION OF RIPRAP QUANTITIES

STRUCTURE IDENTIFICATION #	RIPRAP (CY)		RIPRAP (SPECIAL) (CY)			SOIL RIPRAP (CY)	GROUTED RIPRAP (CY)	COMMENTS
	6"	36"	12"	18"	24"	12"	36"	
STORM LINE 1 OUTFALL			15					
BWRD RIPRAP RUNDOWN			19					
WONDERLAND CREEK SPILLWAY			307	1119				
BWRD TURNOUT			11					
SPRING CREEK PLACE			107					
GRADE CONTROL STRUCTURE #1	45	30	27					
STORM LINE 5 OUTFALL	3					5		
WALL 7						0.5		
GRADE CONTROL STRUCTURE #2	45	30	27					
WALL 8						1.0		
BOULDER GRADE CONTROL STRUCTURE	41	34						WEST BANK 70' U/S OF GRADE CONTROL STRUCTURE 2
GRADE CONTROL STRUCTURE #3	17				205		170	COST OF GROUTED 36" TO INCLUDE PLANTING POCKETS
U/S 34TH STREET BOX CULVERT			38					
D/S BRIDGER TRAIL BOX CULVERT			98					
STORM LINE 9 INLET			3					
IRIS BOX CULVERT				68			41	ENTRANCE
GRADE CONTROL STRUCTURE #4	55	43	21					
WALL 11						0.5		
RIPRAP RUNDOWN		15						20' DOWNSTREAM OF GRADE CONTROL STRUCTURE 5
GRADE CONTROL STRUCTURE #5	55	43	21					
STORM LINE 12 OUTFALL		2						
STORM LINE 13 OUTFALL	46					5		
GRADE CONTROL STRUCTURE #6	98	59	50					
STORM LINE 15 OUTFALL		9						
EX STORM LINE D/S OF FIRE ACCESS		10						NORTH BANK
FIRE ACCESS UNDERPASS		24						
STORM LINE 16 OUTFALL		10						
STORM LINE 17 INLET/OUTFALL	18	53						INCLUDES TYPE M IN CHANNEL
GRADE CONTROL STRUCTURE #7	65	42	20					
STORM LINE 18 OUTFALL		6						
GRADE CONTROL STRUCTURE #8				117				
STORM LINE 19 OUTFALL		7						
GRADE CONTROL STRUCTURE #9			77				43	
GRADE CONTROL STRUCTURE #10			11				29	
STORM LINE 21 INLET			11					
STORM LINE 21 OUTFALL			24					
GRADE CONTROL STRUCTURE #11			65	17			73	
STORM LINE 22 OUTFALL			9					
GRADE CONTROL STRUCTURE #12	43	41	12					
WALL 21						0.5		
WALL 22						0.5		
STORM LINE 23 OUTFALL			9					
GRADE CONTROL STRUCTURE #13	43	41	12					
GRADE CONTROL STRUCTURE #14					101		22	
GRADE CONTROL STRUCTURE #15	18	90						INCLUDES ALL RIPRAP D/S OF PED CROSSING
WINDING TRAIL PEDESTRIAN CROSSING			24					RIPRAP U/S OF PED CROSSING
STORM LINE 25 OUTFALL			13					
STORM LINE 26 OUTFALL			6					
GRADE CONTROL STRUCTURE #16	59	31	21					
STORM LINE 27		1						
WINDING TRAIL CULVERT			50					
GRADE CONTROL STRUCTURE #17			65				57	
STORM LINE 28		1	2					
STABILIZED STAGING AREA	200							
<b>TOTALS</b>	<b>200</b>	<b>653</b>	<b>1,507</b>	<b>1,609</b>	<b>306</b>	<b>13</b>	<b>435</b>	

- NOTES:  
 1. THE COST OF THE 36" RIPRAP SHALL INCLUDE ALL CHINKING AND OTHER MISCELLANEOUS AGGREGATE QUANTITIES ASSOCIATED WITH THE BOULDER WALL DETAILS  
 2. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.  
 3. BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

TABULATION OF BOULDER WALL QUANTITIES

STATION	SIDE	BOULDER WALL (LF)			GEOTEX TILE (DRAINAGE) (CLASS 2) SY	RIPRAP (12" (SPECIAL) CY	RIPRAP (36") CY	COMMENTS
		A	B	C				
WC 53+86	TO	54+21	RT		58	60	19	
WC 53+96	TO	54+19	LT		66	60	22	
WC 54+64	TO	55+76	RT	98		44	33	
WC 58+11	TO	60+82	LT	260		116	87	
WC 58+25	TO	60+61	LT	215		96	72	
WC 65+20	TO	65+31	LT		29	14	14	
WC 70+49	TO	71+68	LT	74	64	80	25	
WC 70+59	TO	70+94	RT	44		20	15	
WC 205+40	TO	206+60	RT	123		55	41	
WC 207+87	TO	208+01	LT	34		15	11	
WC 208+64	TO	209+60	RT	100		44	33	
WC 208+77	TO	209+56	RT	88		39	29	
WC 220+02	TO	221+06	RT	107		48	36	
WC 223+30	TO	223+60	LT	31		14	10	
<b>TOTALS</b>						<b>585</b>	<b>120</b>	<b>447</b>

- NOTES:  
 1. THE COST OF THE 36" RIPRAP SHALL INCLUDE ALL CHINKING AND OTHER MISCELLANEOUS AGGREGATE QUANTITIES ASSOCIATED WITH THE BOULDER WALL DETAILS  
 2. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.

PLOTTED: 6/19/2015 10:14:17 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 25-30.DWG

Computer File Information

Creation Date: 05/30/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_TABULATIONS 25-30.dwg	
AutoCAD 2014	Scale: AS SHOWN

MULLER ENGINEERING CO., INC.  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4+100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
 MEC PROJECT NO. 11039.03

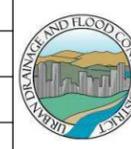


Sheet Revisions

Date:	Comments	Init.

As Constructed

No Revisions:  
 Revised:  
 Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

TABULATION OF MISCELLANEOUS QUANTITIES

Designer: MKN	Structure Numbers
Detailer: JHK	
Sheet Subset: GENERAL	Subset Sheets: G-29

Project No./Code	STM 110-081
	18405
Sheet Number:	29

TABULATION OF FENCING									
STATION	SIDE	REMOVAL OF FENCE	RESET FENCE	RESET GATE	FENCE PICKET	FENCE WOOD	FENCE WOOD RAILING	FENCE CHAIN LINK (PVC COATED)	COMMENTS
		LF	LF	EA	LF	LF	LF	LF	
BWRD 15+19	RT	33	33						RESET FENCE PER CITY OF BOULDER DIRECTION
WC 51+54 TO 52+21	LT						214		ADJACENT TO TRAIL
WC 51+58	LT	49							GARDEN FENCE. OFFER TO OWNERS
WC 53+75 TO 54+11	LT	58							WOOD FENCE SOUTH OF SPRING CREEK
WC 54+15	LT			1					SPRING CREEK FIRE ACCESS GATE. INCLUDES REMOVAL
WC 54+19 TO 54+55	LT	60							PICKET FENCE NORTH OF SPRING CREEK
WC 54+28 TO 54+55	LT				48				PICKET FENCE NORTH OF SPRING CREEK
WC 56+85 TO 57+11	RT	73							GARDEN FENCE. OFFER TO HOA
WC 66+42	RT	21				21			3333 IRIS AVE
WC 208+01 TO 208+74	LT	274	72					197	DOG PARK, MATCH EXISTING FENCE. INCLUDES GATE
WC 218+76	RT	266							BARBED WIRE FENCE EAST OF 28TH
WC 221+14 TO 224+05	RT	422							SPLIT RAIL FENCE AT MANOR CARE.
<b>TOTALS</b>		<b>1,256</b>	<b>105</b>	<b>1</b>	<b>48</b>	<b>21</b>	<b>214</b>	<b>197</b>	

**NOTES:**

1. WC REFERS TO THE WONDERLAND CREEK CENTERLINE ALIGNMENT.
2. BWRD REFERS TO THE BOULDER AND WHITE ROCK DITCH CENTERLINE ALIGNMENT.

TABULATION OF WATER QUALITY POND QUANTITIES								
STRUCTURE IDENTIFICATION #	FILTER MATERIAL (CY)			TOPSOIL (SPECIAL)	6" SCHEDULE 80 PVC (SOLID) PIPE	6" SCHEDULE 80 PVC (PERFORATED) PIPE	CONCRETE CLASS D	COMMENTS
	CLASS A	CLASS B	CLASS C	CY	LF	LF	CY	
SPRING CREEK TREATMENT	11	4	4	8	-	62	-	
WINDING TRAIL TREATMENT 1	27	11	9	19	32	90	0.25	
WINDING TRAIL TREATMENT 2	41	17	15	30	78	109	0.25	
<b>TOTALS</b>	<b>79</b>	<b>32</b>	<b>28</b>	<b>57</b>	<b>110</b>	<b>261</b>	<b>0.5</b>	

PLOTTED: 6/19/2015 10:14:19 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_TABULATIONS 25-30.DWG

<b>Computer File Information</b> Creation Date: 05/30/15 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_TABULATIONS 25-30.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: _____ Comments: _____ Init.: _____ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		<b>As Constructed</b> No Revisions: Revised: Void:				WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>TABULATION OF MISCELLANEOUS QUANTITIES</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: GENERAL Subset Sheets: G-30		Project No./Code <b>STM 110-081</b> <b>18405</b> Sheet Number: <b>30</b>	
--	--	---	--	--	--	--	--	---	--	---	--	--	--	---	--

**1. SITE DESCRIPTION**

For Information Only to fulfill the CDPS-SCP (Colorado Discharge Permit System - Stormwater Construction Permit) Contractor to update to reflect current project site conditions as needed.

A. **PROJECT SITE DESCRIPTION:** This project will include substantial proposed improvements to Wonderland Creek with the upstream limits being Winding Trail Drive and the downstream limits being Foothills Parkway. The project goals include reducing/eliminating flooding of adjacent structures and properties, providing a formal crossing under the Burlington Northern Santa Fe (BNSF) railroad, providing a pedestrian underpass at Kalmia Avenue as well as 28<sup>th</sup> Street, and extending and / or connecting the Wonderland Creek multi-use path from Foothills Parkway to Winding Trail Drive. Additional objectives are preserving existing trees and wetland vegetation, maintaining base and low flows to the Boulder White Rock Ditch (BWRD). Beginning at the downstream end and working upstream the major improvements included a proposed railroad bridge (to be constructed by the Railroad as a separate project) for Wonderland Creek. Realigning the BWRD to allow for a spillway drop structure to connect Wonderland Creek to its downstream Foothills Parkway culverts. Replacing existing 3 cell Spring Creek Place culvert with a proposed 5 cell culvert. Providing additional channel capacity between Spring Creek Place and 34<sup>th</sup> Street. At 34<sup>th</sup> Street and Iris Avenue a proposed 2 cell 12'(S)x5'6"(R) box culvert will run along Iris for roughly 440 LF. A proposed 2 cell 9'6"(S)x4'6"(R) culvert is proposed from the existing channel North of Iris to the existing channel near Bridger Trail. Upstream of these box culverts the channel improvements will provide additional conveyance capacity and grade control. From Diagonal Highway to Kalmia Avenue concrete retaining walls will allow for additional capacity in the existing drainage ROW. In this same reach a pedestrian bridge will be placed downstream of Kalmia Avenue to replace the existing low flow crossing. This bridge will span the 100-year floodplain. The existing box culvert at Kalmia Avenue will be replaced by a proposed 2 cell 14'(S)x9'-6"(R) box culvert. The east cell of the Kalmia Avenue box culvert will be used as an underpass by the multi-use path. Two 16'(S)x10'(R) box culverts will be placed under 28<sup>th</sup> Street, the northern cell will be used for the multi-use path underpass in addition to storm conveyance. Upstream of 28<sup>th</sup> Street a low flow pedestrian crossing proposed. Between 28<sup>th</sup> Street and Winding Trail Drive retaining walls will be utilized to maximize the available ROW and contain the 100-year floodplain. At Winding Trail Drive a 3 cell 15'(S)x5'(R) box culvert will be constructed to improve conveyance. Multiple grade control structures will be placed along Wonderland Creek to provide a stable channel slope. These structures will vary in height from one foot to nearly 8 feet. Excavation and grading will be required along the entire reach of the project to widen and deepen the channel. The improvements along Wonderland Creek will impact a variety of utilities. These utilities will include sanitary sewers, storm sewers, water lines, electric lines, gas lines, telephone lines, cable, and fiber optics. The property that is to be disturbed by the project improvements will be restored in-kind with the exception of the areas of proposed improvements and the new multi-use path. Project improvements are located on property owned by the City of Boulder or deeded right of way. Multiple property owners the border Wonderland Creek along the project reach

B. **PROPOSED SEQUENCING FOR MAJOR ACTIVITIES:**

- 1) The project will commence with the setup of the staging area and the provision of the initial erosion control Best Management Practices (BMPs)
- 2) Installing the initial BMPs as shown on the plans or as deemed necessary by the Contractor. This will include constructing the vehicle tracking control, concrete washouts, and perimeter control such as construction fencing, silt fence, sediment control log, or some combination of these BMPs as shows on the plans or as necessary. All initial BMPs and perimeter control shall be in place for the selected work area prior to clearing and grubbing or other major construction activities in that area.
- 3) The BNSF bridge will likely be constructed by BNSF prior to the improvements proposed for Wonderland Creek.
- 4) The sequencing of some project improvements may be dictated by the irrigation season and the presence of flow in the BWRD. In the winter months the BWRD will be realigned to the west and the improvement in the immediate vicinity of the ditch will be constructed.
- 5) It is assumed that the contractor will work from downstream to upstream. In some cases this will be required so as to not allow more flow to an area than has historically been possible prior to the construction of downstream improvements. For example the 28<sup>th</sup> Street culverts cannot be constructed prior to the improvements being in place downstream of Kalmia Ave.
- 6) Following the ditch improvements the contractor will likely construct the spillway drop structure and the improvements from the ditch up to 34<sup>th</sup> Street. The utility relocation work in this area as well as in Iris Avenue will take place at this time as well.
- 7) The large box culverts in Iris Ave. will be constructed following the relocation of the utilities.
- 8) The retaining walls downstream of Kalmia, the pedestrian bridge, and the Kalmia Ave improvement will be constructed next.
- 9) The new channel to the east of 28<sup>th</sup> Street will be constructed prior to the installation of the proposed 28<sup>th</sup> Street coverts.
- 10)The construction of the retaining walls, pedestrian lowflow crossing and the improvements to Winding Trail will follow.
- 11)After acceptance of final stabilization, all initial and interim BMPs will be removed unless otherwise directed by the engineer.

C. **ACRES OF DISTURBANCE:**

1. Total area of construction site: 16.9 acres
2. Total area of disturbance: 16.9 acres
3. Acreage of seeding: 15.7 acres

D. **EXISTING SOIL DATA:**

Given the length of the soils it is expected that multiple conditions will be encountered. Soils encountered during borings generally consisted of nil to about 5.5 feet of sandy clay fill and roughly 7.5 to 16 feet of natural sandy clay, slightly silty to clayey sand and/or interlayered clay/sand, underlain by weathered and comparatively unweathered claystone bedrock to the maximum depth explored of 30 feet. The near-surface soils and bedrock are generally non-expansive or low swelling. Soils were considered to be suitable to support lightly loaded structures such as culverts and retaining walls. For more information the project Geotechnical Reports should be referenced.

E. **EXISTING VEGETATION, INCLUDING PERCENT COVER:**

The existing vegetation varies over the course of the project. The area upstream of the existing BWRD is filled with dense cattails and trees. The channel from upstream of this to 34<sup>th</sup> street is comprised of willows and wetland grasses. The existing channel upstream of here to 28<sup>th</sup> Street is densely vegetated with shrubs and trees. Upstream of 28<sup>th</sup> Street the channel is comprised of manicured turf grass. The density of vegetation ranges from 100% in places to 30% in others.

F. **POTENTIAL POLLUTANTS SOURCES:**

See First Construction Activities under Potential Pollutant Sources. The ECS shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25.

PLOTTED: 6/19/2015 10:14:33 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP NOTES.DWG

<b>Computer File Information</b> Creation Date: 07/31/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP NOTES.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: Comments Init.			<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN</b> GENERAL NOTES			Project No./Code STM 110-081 18405	
										Designer: MKN Structure Detailer: JHK Numbers		Sheet Subset: SWMP Subset Sheets: SM-1		Sheet Number: 31				

**G. RECEIVING WATER:**

**1. Outfall locations:**

The project improvements will maintain some of the outfall locations, while others will be rerouted to outfall at different locations. Several additional outfalls will be added as a result of the project improvements. The existing and proposed outfall locations are as follows.

- Sta. 53+58, 33' LT: Proposed Outfall – 18" RCP: The proposed outfall will replace an existing storm sewer system that outfalls at Sta. 53+59, 26' LT. This proposed system originates in a sump located to the west of the Spring Creek Place culvert and outfalls into the proposed Spring Creek Place culvert.
- Sta. 54+15, 20' LT: Existing Outfall – 18" RCP: This will be modified/trimmed to outfall at Sta. 54+25, 41' Proposed Outfall -18" RCP. This proposed system will outfall through the wingwall of the Spring Creek Place culvert.
- Sta. 56+46, 78' RT: Existing Outfall – 12" PVC: This will be modified/extended to outfall at Sta. 56+22, 16' RT via a 12" PVC.
- Sta. 62+11, 41' RT: Proposed Outfall – 18" RCP: This new system will outfall from a sump located along Iris east of 34<sup>th</sup> Street through a retaining wall.
- Sta. 62+14, 19' LT: Existing Outfall – 24" RCP: The existing outfall will be maintained.
- Sta. 62+96, 64' RT: Proposed Outfall – 30" RCP: This new system will outfall into the north box of the proposed Iris culvert, which will replace the outfall at Sta. 62+64, 6' RT: Existing Outfall – 30" RCP which outfalls into the existing 34<sup>th</sup> Street culvert.
- Sta. 63+28, 12' LT: Existing Outfall – 18" RCP: The existing outfall will be maintained.
- Sta. 63+35, 21' RT: Existing Outfall – 18" RCP: The existing outfall will be maintained.
- Sta. 64+94, 17' LT: Existing Outfall – 15" RCP: The existing outfall will be maintained.
- Sta. 65+30, 57' LT: Existing Outfall – 24"x12" Elliptical RCP: The existing outfall will be maintained. The flows will go through a swale and outfall at Sta. 65+15, 16' LT: Proposed Outfall – 24" RCP: This system will originate in a sump located south of the Bridger Trail culvert and outfall into the proposed Bridger Trail culvert.
- Sta. 66+43, 24 RT: Proposed Outfall – Type C Inlet: The proposed system services drainage from a parking lot north of Iris into the proposed Iris box culvert.
- Sta. 66+70, 16' LT: Proposed Outfall – 18" RCP: The proposed system collects flows from the north side of Iris and outfalls into the proposed Bridger Trail culvert.
- Sta. 69+59, 27' LT: Proposed Outfall – 24" RCP: The proposed system will extend the existing system that outfalls at Sta. 69+61, 38' LT: Existing Outfall – 24" RCP, through the proposed retaining wall along Iris.
- Sta. 70+37, 21' RT: Existing Outfall – 18" RCP: This system will be modified and a boulder rundown will be placed on the end of the existing pipe. The outfall will remain in the same location.
- Sta. 203+61, 22 LT: Proposed Outfall – 18" RCP: This system will replace the existing system of four 8" PCV outfalls at Sta. 203+92, 31' LT.
- Sta. 204+29, 17 RT: Existing Outfall – 24" RCP: The existing outfall will be maintained.
- Sta. 205+70, 9 LT: Proposed Outfall – 18" RCP: This system will replace the existing system of three 8" PCV outfalls at Sta. 205+77, 13' LT.
- Sta. 208+07, 25' LT: Proposed Outfall – Two 36" RCP: This system will replace the existing system at Sta. 208+5, 23' LT: Existing Outfall – 24" CMP.
- Sta. 212+04, 29' RT: Existing Outfall – 6" PVC: This will be modified/extended to outfall on the Wonderland Creek side of the trail.
- Sta. 212+18, 17' LT: Existing Outfall – 6" PVC: This will be modified/trimmed to outfall through the retaining wall at Sta. 212+18, 21' LT.
- Sta. 213+21, 33' RT: Existing Outfall – 36" RCP: This will be relocated to outfall at Sta. 214+82, 16' RT: Proposed Outfall – 36" RCP.
- Sta. 225+75, 53' RT: Existing Outfall – 24" RCP: This will be modified/extended to Sta. 225+58, 2' RT: Proposed Outfall – 24" RCP, and will outfall into the top of the proposed 28<sup>th</sup> Street culvert.
- Sta. 227+81, 44' RT: Proposed Outfall – 24" RCP: This new system will connect two systems that outfalls at Sta. 226+93, 27' RT: Existing Outfall – 18" RCP, and Sta. 227+17, 16' RT: Existing Outfall - 12" RCP, and will extend the system to outfall through the proposed retaining wall along Winding Trail.
- Sta. 229+29, 7' LT: Existing Outfall – 18" RCP: This system outfalls from a sump to the south of Winding Trail Drive, and will be replaced by a new system at Sta. 229+41, 40' LT: Proposed Outfall -18" RCP, which will outfall through the proposed retaining wall on the south side of Wonderland Creek.
- Sta. 230+47, 45' LT: Existing Outfall – 18" RCP: This system outfalls from a sump to the north of Winding Trail Drive, and will be replaced by a new system at Sta. 230+44, 23' LT: Proposed Outfall -18" RCP, which will outfall through the proposed wingwall of the proposed cell of Winding Trail Drive culvert.

2. Names of receiving water(s) on site and the ultimate receiving water: Wonderland Creek is the receiving water, which ultimately empties into Boulder Creek via Goose Creek.

3. Distance ultimate receiving water is from project: Boulder Creek is approximately 1.2 miles from the downstream reach of the project.

**H. ALLOWABLE NON-STORMWATER DISCHARGES:**

1. Groundwater and stormwater dewatering: Discharges to the ground of water from construction dewatering activities may be authorized provided that:

- a. the source is groundwater and/or groundwater combined with stormwater that does not contain pollutants
- b. the source and BMPs are identified in the SWMP
- c. discharges do not leave the site as surface runoff or to surface waters.

2. If discharges do not meet the above criteria a separate permit from the Department of Health will be required. Contaminated groundwater requiring coverage under a separate permit may include groundwater contaminated with pollutants from a landfill, mining activities, industrial pollutant plumes, underground storage tank, etc.

**I. ENVIRONMENTAL IMPACTS:**

- 1. Wetland Impacts: YES NO
- 2. Stream Impacts: YES NO
- 3. Threatened and Endangered Species: None

**2. SITE MAP COMPONENTS:**

All erosion and sediment control measures associated with the SWMP are presented on the erosion control drawings. The following information is provided on the erosion control drawings:

- A. PROJECT CONSTRUCTION POTENTIAL SITE BOUNDARIES: See Limits of Construction (LOC)
- B. ALL AREAS OF GROUND SURFACE DISTURBANCE: See Limits of Construction (LOC)
- C. AREAS OF CUT AND FILL: No areas of Cut/Fill have been provided. The project is almost entirely comprised of cut within the Limits of Construction.
- D. LOCATION OF ALL STRUCTURAL BMPs IDENTIFIED IN THE SWMP: See Plans
- E. LOCATION OF NON-STRUCTURAL BMPs AS APPLICABLE IN THE SWMP: See Plans
- F. SPRINGS, STREAMS, WETLANDS AND OTHER SURFACE WATER: See Plans
- G. PROTECTION OF TREES, SHRUBS, CULTURAL RESOURCES AND MATURE VEGETATION: See Plans
- H. AREAS USED FOR STORING AND STOCKPILING OF MATERIALS, STAGING AREAS (field trailer, fueling, etc) and BATCH PLANTS: See Plans

Revise site maps in accordance to 208.03

**3. SWMP ADMINISTRATOR FOR DESIGN:** James Watt, PE, Muller Engineering Company (303) 988-4939

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

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. DESIGNATE A SWMP ADMINISTRATOR/EROSION CONTROL SUPERVISOR (To be filled out at time of construction; designate the individual(s) responsible for implementing, maintaining and revising the SWMP, including the title and contact information. The activities and responsibilities of the administrator shall address all aspects of the projects SWMP.)

Name/Title: Contact information:

**B. POTENTIAL POLLUTANT SOURCES**

Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place in the SWMP notebook. All BMPs related to potential pollutants shall be shown on the SWMP site map by the contractor's ECS.

**C. BEST MANAGEMENT PRACTICES (BMPs) FOR STORMWATER POLLUTION PREVENTION**

**PHASED BMP IMPLEMENTATION, APPLICATION AND NARRATIVE:**

During Design: "BMP as Designed" boxes are marked when used in the SWMP. During construction: the ECS shall update the narratives, include new narratives and update the "In use on site" boxes to match which BMPs are currently in use on site. Clearly describe the relationship between the phases of construction and the implementation of BMP controls.

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

PLOTTED: 6/19/2015 10:14:37 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP NOTES.DWG

<b>Computer File Information</b> Creation Date: 07/31/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP NOTES.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4+100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: Comments Init.			<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN</b> GENERAL NOTES		Project No./Code STM 110-081 18405	
									Designer: MKN Structure Detailer: JHK Numbers		Sheet Subset: SWMP Subset Sheets: SM-2		Sheet Number: 32				

PLOTTED: 6/19/2015 10:14:42 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD11-039.03\_SWMP NOTES.DWG

Structural BMPs and Application	Narrative	BMP as Designed	In use on site	FIRST CONSTRUCTION ACTIVITIES	DURING CONSTRUCTION	INTERIM/FINAL STABILIZATION
Earth Berm/Stockpile	Placed around toe to contain sediment around stockpile					
Earth Berm/Toe of fill	Placed prior to earthwork within specified distance of toe to capture sediment and protect undisturbed areas					
Earthberm/Diversion	Placed to divert drainage and subdivide runoff volume from less than 10 acre sub basins. Temp feature to be removed upon final stabilization					
*Rock Check Dams/Ditch	Velocity checks in ditches placed immediately after ditch grading	X	X		X	
Silt Fence/Sediment Control	Placed on contour to contain construction runoff	X	X		X	
Silt Fence/Protection of Vegetation	Placed to protect undisturbed area and delineate boundary of protected area					
Erosion Logs, Silt Berms or Silt Dikes/Ditch Checks	Erosion Control checks in ditches placed immediately after ditch grading to reduce flow velocity of runoff in ditch	X	X		X	X
Erosion Logs/ Existing Inlet	Placed prior to disturbance at existing inlets where disturbance maybe occurring to cause sediment laden water to enter pipe	X	X		X	
Erosion Logs/culvert inlet or outlet	Placed on culvert to filter or prevent sediment from entering pipe. If disturbance occurs above pipe then erosion logs are placed above pipe	X	X		X	X
Erosion Logs/Sediment Control	Placed to protect undisturbed area and delineate boundary of protected area					
Storm Drain Inlet Protection/Sediment Control	Placed to protect storm drain inlets to filter or prevent sediment from entering drainage system.	X	X		X	X
Temporary Sediment Trap/Basin	Contain and filter sediment laden water from < 5 acre sub basins within construction disturbance					
Permanent Sediment Trap/Basin	Utilized during construction to act as temporary sediment containment. Outlet structure shall be modified for construction runoff					
Embankment Protection or Temp Slope Drain	Placed as a conduit or chute to drain runoff down slope and prevent erosion of slope					
Outlet Protection	Material placed as energy dissipation device to prevent erosion at outlet structure	X			X	X
Concrete Washouts/Construction Control	Construction waste management of concrete washout material	X	X		X	
Vehicle tracking Pad/Construction Control	Placed to prevent tracking of sediment from disturbance to offsite surface	X	X		X	
Sweeping/Construction or Source Control	Utilized to remove sediment on pavement surface and to prevent sediment from entering drainage system					
Dewatering/ Construction Control	Sediment control to remove or filter sediment from construction dewatering	X			X	
Temporary Stream Crossing/ Construction Control	Constructed over stream or drainage to prevent discharge of pollutants from construction equipment into stream.					
Clean water diversion	Placed to divert clean surface or ground water from mixing with construction runoff or activity					
Other						

Non Structural BMPs and Application	Narrative	BMP As Designed	In Use On Site	First Construction Activities	During Construction	Interim/Final Stabilization
Surface Roughening/Grading Techniques	Interim and temp stabilization of disturbance and to minimize wind and erosion	X			X	X
Seeding Permanent/Final Stabilization	Reduce runoff and control erosion on disturbed areas	X			X	X
Seeding Temporary	Over wintering of disturbance or used to control erosion for areas scheduled for future construction					
Mulch/Mulch Tackifier/Temp or Final Stabilization	Placed as a surface cover for erosion control and or seeding establishment	X			X	X
Soil Retention Blanket /Temp or Final Stabilization	Placed as surface cover for erosion control and seeding establishment	X			X	X
Turf Reinforcement Mat/ Final Stabilization	Placed in channels or on slopes for erosion control, channel liner and seeding establishment					
Soil Binder/Temp Stabilization	Placed as surface treatment to provide temp erosion control					
Spray on mulch blanket/Temp or Final Stabilization	Placed cover on slopes to control erosion and seeding establishment					
Vegetative Buffer Strips	Filter sediment laden runoff from disturbance area					
Protection Of Trees/Protected Resources -Fence Plastic	Placed prior to construction to protect existing vegetation to remain	X	X		X	
Preservation Of Mature Vegetation/Work access and grading plans	Used to protect existing stable cover and minimize impact to vegetation	X	X		X	X

\*Check dams may be rock, erosion logs, silt dike, silt berm, etc. as indicated in the narratives and SWMP site map.  
 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 control are BMPs related to construction access and staging.  
 BMP locations are indicated on the SWMP site map.  
 BMP details and narratives not covered by the SWMP or Standard Plan M-208-1 shall be added to the SWMP notebook by the ECS.

**D. OFFSITE DRAINAGE (RUN ON WATER)**

1. Describe and record BMPs on the SWMP site map that has been implemented to address off site run-on water in accordance with subsection 208.03.

**E. VEHICLE TRACKING PAD**

1. BMPs shall be implemented in accordance with subsection 208.04.

**F. PERIMETER CONTROL**

1. 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.
2. Perimeter control may consist of vegetation buffers, berms, silt fence, erosion logs, existing landforms, or other BMPs as approved.
3. Perimeter control shall be in accordance with subsection 208.04.

<b>Computer File Information</b> Creation Date: 07/31/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP NOTES.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: _____ Comments: _____ Init.: _____ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN</b> <b>GENERAL NOTES</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: SWMP Subset Sheets: SM-3		Project No./Code <b>STM 110-081</b> <b>18405</b> Sheet Number: <b>33</b>	
---	--	---	--	--	--	--	--	--	---	--	---	--	--	---	--	---	--

**5. DURING CONSTRUCTION**

**RESPONSIBILITIES OF THE SWMP ADMINISTRATOR/EROSION CONTROL SUPERVISOR DURING CONSTRUCTION**

The SWMP should be considered a "living document" that is continuously reviewed and modified. During construction, the following items shall be added, updated, or amended as needed by the SWMP Administrator/Erosion Control Supervisor (ECS) in accordance with Section 208.

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

- A. **STOCKPILE MANAGEMENT** - shall be done in accordance with subsection 107.25 and 208.07
- B. **CONCRETE WASHOUT** - Concrete wash out water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.
- C. **SAW CUTTING** - shall be done in accordance with subsection 107.25, 208.04, 208.05
- D. **STREET CLEANING** - shall be done in accordance with subsection 208.04

**6. INSPECTIONS**

- A. Inspections shall be in accordance with subsection 208.03 (c).

**7. BMP MAINTENANCE**

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

**8. RECORD KEEPING**

- A. Records shall be kept in accordance with subsection 208.03 (c).

**9. INTERIM AND FINAL STABILIZATION**

**A. SEEDING PLAN**

Soil preparation, soil conditioning or topsoil, seeding (native), mulching (weed free) and mulch tackifier will be required for an estimated 7.0 acres of disturbed area within the right-of-way limits which are not surfaced. See landscape plans for types and rates to be used along the project.

**B. SEEDING APPLICATION:** Drill seed 0.25 inch to 0.5 inch into the soil. In small areas not accessible to a drill, hand broadcast at double the rate and rake 0.25 inch to 0.5 inch into the soil.

**C. MULCHING APPLICATION:** Apply a minimum of 1 1/2 tons of certified weed free native hay per acre and in accordance with Section 213, and mechanically crimp it into the soil in combination with an organic mulch tackifier.

**D. SPECIAL REQUIREMENTS:** Due to high failure rates, hydromulching and/or hydroseeding will not be allowed

**E. SOIL CONDITIONING AND FERTILIZER REQUIREMENTS:**

Soil conditioner paid for as Item 212- Soil Conditioning (Acre)		
Biological nutrient organic based fertilizer (lbs/acre)*	Humate (lbs/acre)	Compost (cys/acre) (1/2 inch depth)
600	200	65

\*Biological nutrient shall not exceed 8-8-8 (N-P-K). Humate based material shall be in accordance to Section 212 and compost shall be in accordance to Special Provision 212.

**F. BLANKET APPLICATION:** On slopes and ditches requiring a blanket, the blanket shall be placed in addition to mulch. See SWMP for blanket locations.

**G. RESEEDING OPERATIONS/CORRECTIVE STABILIZATION**

Prior to final acceptance.

1. Seeded areas shall be reviewed during the 14 day inspections by the Erosion Control Supervisor for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be regraded, seeded, mulched and have mulch tackifier (or blanket) applied as necessary, at no additional cost to the project.
2. Areas where seed has not germinated after one season shall be evaluated by the Engineer and CDOT Landscape Architect. Areas that have not germinated shall have seed, mulch and mulch tackifier (or blanket) reapplied. Work shall be paid for by the appropriate bid item.
3. The Contractor shall maintain seeding/mulch/tackifier, mow to control weeds or apply herbicide to control weeds in the seeded areas until Final Acceptance.

PLOTTED: 6/19/2015 10:14:45 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP NOTES.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>			<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			Project No./Code				
Creation Date: 07/31/14	Initials: JHK	 CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03		Date:		Comments		Init.		  			STORMWATER MANAGEMENT PLAN GENERAL NOTES		STM 110-081	
Last Modification Date: 06/18/15	Initials: JHK			No Revisions:		Revised:		Void:		Designer: MKN    Structure Detailer: JHK    Numbers			18405			
Full Path: P:\11-039.03\CAD				Sheet Subset: SWMP		Subset Sheets:		SM-4		Sheet Number: 34						
Drawing File Name: 11-039.03_SWMP NOTES.dwg																
AutoCAD 2014	Scale: AS SHOWN															

**10. PRIOR TO FINAL ACCEPTANCE**

A. Final Acceptance shall be in accordance with subsection 208.10.

**11. TABULATION OF STORMWATER QUANTITIES**

Pay Item	Description	Pay Unit	*Quantity
208-00002	Erosion Log (12 Inch)	LF	451
208-00020	Silt Fence	LF	13,065
208-00041	Rock Check Dam	Each	5
208-00045	Concrete Washout Structure	Each	3
208-00051	Storm Drain Inlet Protection (Type1)	LF	693
208-00070	Vehicle Tracking Pad	Each	3
212-00006	Seeding (Native)	Acres	5.0
212-00032	Soil Conditioning	Acres	7.0
216-00201	Soil Retention Blanket (Straw-Coconut)(Class 1)	SY	1,272
216	Erosion Control Blanket	SY	10,074
607-11525	Fence (Plastic)	LF	10,281

\*It is anticipated that additional BMPs and BMP 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 subsection 208.03 and 208.04 (e). Quantities for all BMPs shown above are estimated, and have been increased for unforeseen Project conditions.

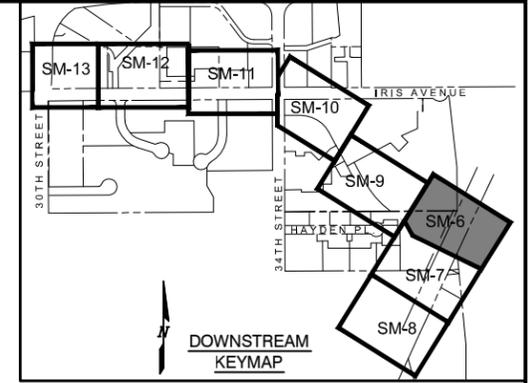
- A. BMP sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Equipment) and 208 Removal and Disposal of Sediment (Labor). All other BMP maintenance shall be included in the cost of the BMP Device.
- B. Maintenance of seeded areas shall be paid for as: [Shall be included in the price of the work]

**CITY OF BOULDER EROSION CONTROL NOTES:**

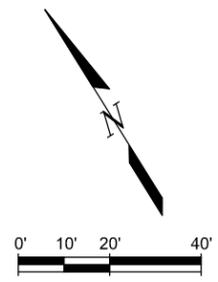
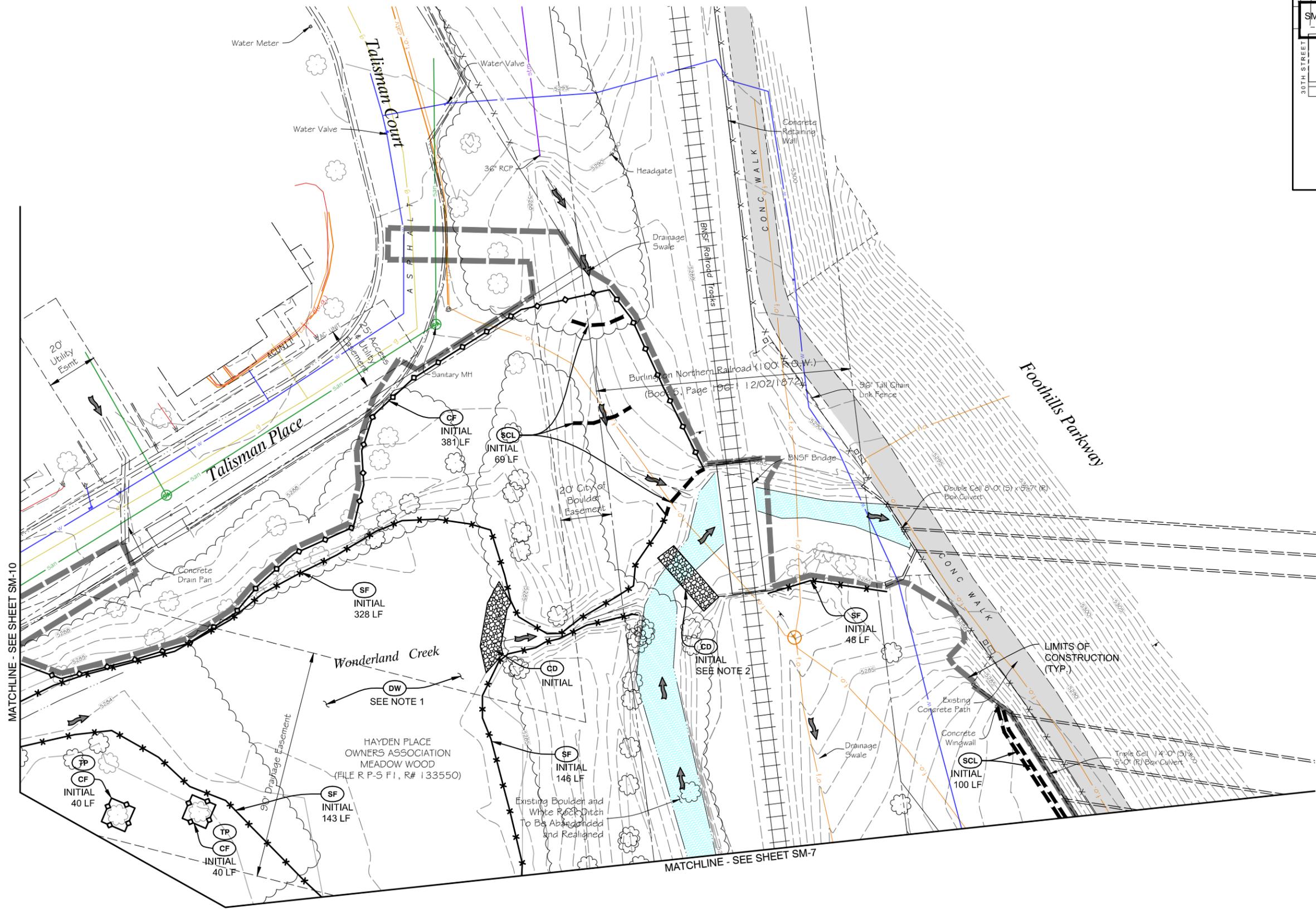
1. ALL TEMPORARY EROSION CONTROL FACILITIES SHALL BE INSTALLED BEFORE ANY CONSTRUCTION ACTIVITIES TAKE PLACE\*.
2. SOLID WASTE, INDUSTRIAL WASTE, YARD WASTE AND ANY OTHER POLLUTANTS OR WASTE ON ANY CONSTRUCTION SITE SHALL BE CONTROLLED THROUGH THE USE OF BMP'S. WASTE AND/ OR RECYCLING CONTAINERS SHALL BE PROVIDED AND MAINTAINED BY THE OWNER OR CONTRACTOR ON CONSTRUCTION SITES WHERE THERE IS THE POTENTIAL FOR RELEASE OF WASTE. UNCONTAINED WASTE THAT MAY BLOW, WASH OR OTHERWISE BE RELEASED FROM THE SITE IS PROHIBITED. SANITARY WASTE FACILITIES SHALL BE PROVIDED AND MAINTAINED BY THE OWNER OR CONTRACTOR.
3. READY-MIXED CONCRETE, OR ANY MATERIALS RESULTING FROM THE CLEANING OF VEHICLES OR EQUIPMENT CONTAINING OR USED IN TRANSPORTING OR APPLYING IT, SHALL BE CONTAINED ON CONSTRUCTION SITES FOR PROPER DISPOSAL. RELEASE OF THESE MATERIALS IS PROHIBITED.
4. COVER SHALL BE APPLIED WITHIN 14 DAYS TO INACTIVE SOIL STOCKPILES, AND SHALL BE MAINTAINED FOR STOCKPILES THAT ARE PROPOSED TO REMAIN IN PLACE LONGER THAN 30 CALENDAR DAYS.
5. BMP'S SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF SEDIMENT FROM CONSTRUCTION SITES. VEHICLE TRACKING OFMUD SHALL NOT BE ALLOWED TO ENTER THE STORM WATER SYSTEM OR WATERS OF THE STATE. SEDIMENT TRACKED ONTO PUBLIC STREETS SHALL BE REMOVED.
6. TECHNIQUES SHALL BE USED TO PREVENT DUST, SEDIMENT OR DEBRIS BLOWING FROM THE SITE.
7. STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION OR DEGRADATION OF WATERS OF THE STATE.
8. ALL EARTH DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED AND COMPLETED TO LIMIT THE EXPOSED AREA OF ANY DISTURBED LAND TO THE SHORTEST POSSIBLE PERIOD OF TIME.
9. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING THE STORM WATER SYSTEM OR WATERS OF THE STATE.
10. ANY DISTURBANCE TO TEMPORARY AND PERMANENT BMP'S SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS.
11. THE PROPERTY OWNER AND SUBSEQUENT PROPERTY OWNERS WILL BE RESPONSIBLE FOR CONTINUED COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION, DURING CONSTRUCTION ACTIVITY ON THE SITE.
12. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AND DISPOSED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED, OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, WHICHEVER OCCURS FIRST.

PLOTTED: 6/19/2015 10:14:48 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP NOTES.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT				Project No./Code			
Creation Date: 07/31/14      Initials: JHK		 CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939		Date:		No Revisions:		   Region 4 RDM				STORMWATER MANAGEMENT PLAN		STM 110-081	
Last Modification Date: 06/18/15      Initials: JHK				Comments		Init.						GENERAL NOTES		18405	
Full Path: P:\11-039.03\CAD												Designer: MKN      Structure		Numbers	
Drawing File Name: 11-039.03_SWMP NOTES.dwg								Detailer: JHK							
AutoCAD 2014      Scale: AS SHOWN		MEC PROJECT NO. 11039.03				Void:		Sheet Subset: SWMP      Subset Sheets: SM-5		Sheet Number: 35					

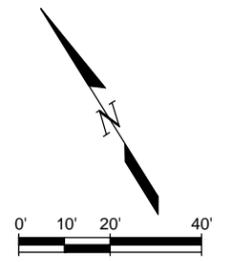
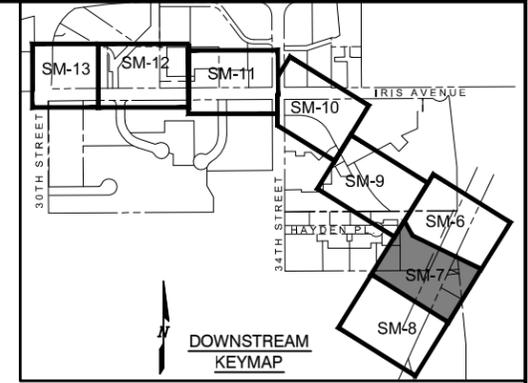
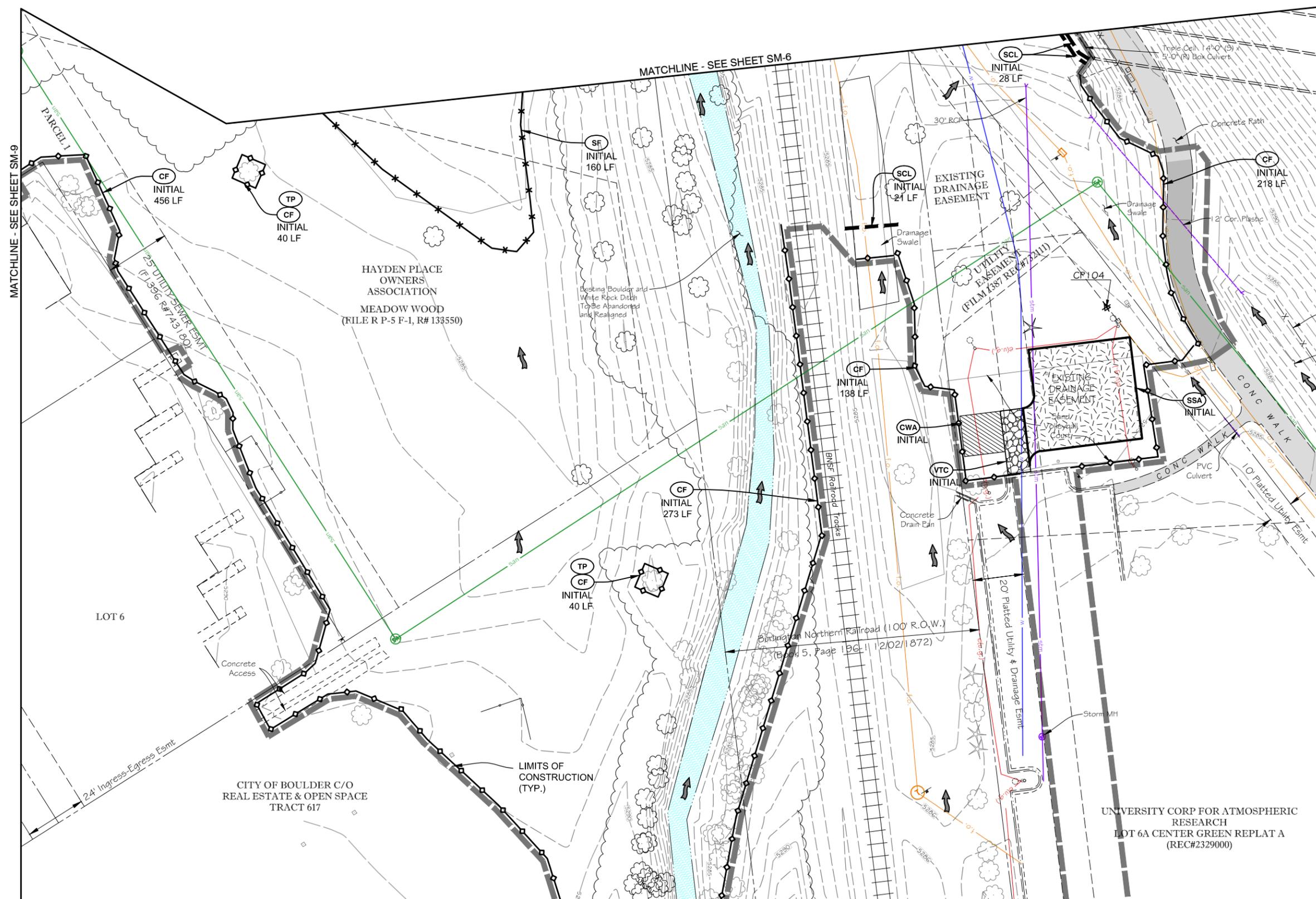


- NOTES:**
1. IN ADDITION TO CREEK FLOWS, THE AREA UPSTREAM OF THE CONFLUENCE OF WONDERLAND CREEK AND THE BOULDER WHITE ROCK DITCH IS SUBJECT TO FLOODING FROM DITCH BACKWATER. CONTRACTOR SHALL COORDINATE THE TIMING OF CONSTRUCTION ACTIVITIES WITH THE DITCH LOW FLOW OR NO FLOW TIME PERIOD, PROVIDE PROTECTION FROM BACKWATER, DEWATER CREEK FLOWS AND DITCH BACKWATER, OR SOME COMBINATION OF THESE ACTIVITIES.
  2. A CHECK DAM SHALL BE INSTALLED IN THE DITCH ONLY DURING CONSTRUCTION OF DITCH IMPROVEMENTS WHEN NO DITCH FLOW IS PRESENT.



PLOTTED: 6/19/2015 10:15:20 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL.DWG

<b>Computer File Information</b> Creation Date: 10/01/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP_INITIAL.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: Comments Init.		<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - INITIAL</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: SWMP Subset Sheets: SM-6			Project No./Code <b>STM 110-081</b> <b>18405</b> Sheet Number: <b>36</b>	
---	--	---	--	--	--	--	--	---	--	--	--	--	---	--	--	---	--



PLOTTED: 6/19/2015 10:15:25 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL.DWG

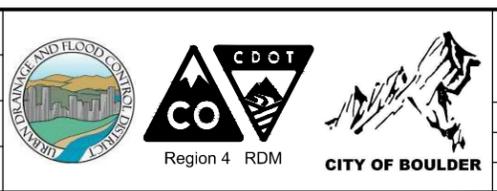
Computer File Information	
Creation Date: 10/01/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_INITIAL.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

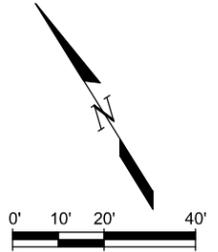
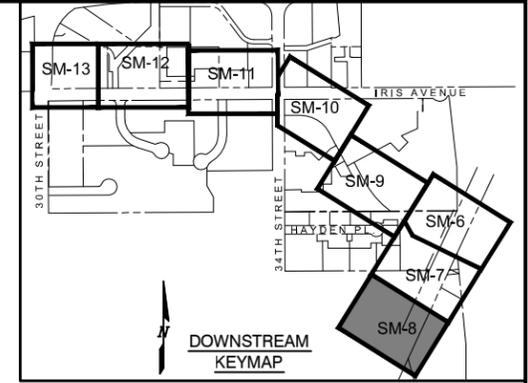
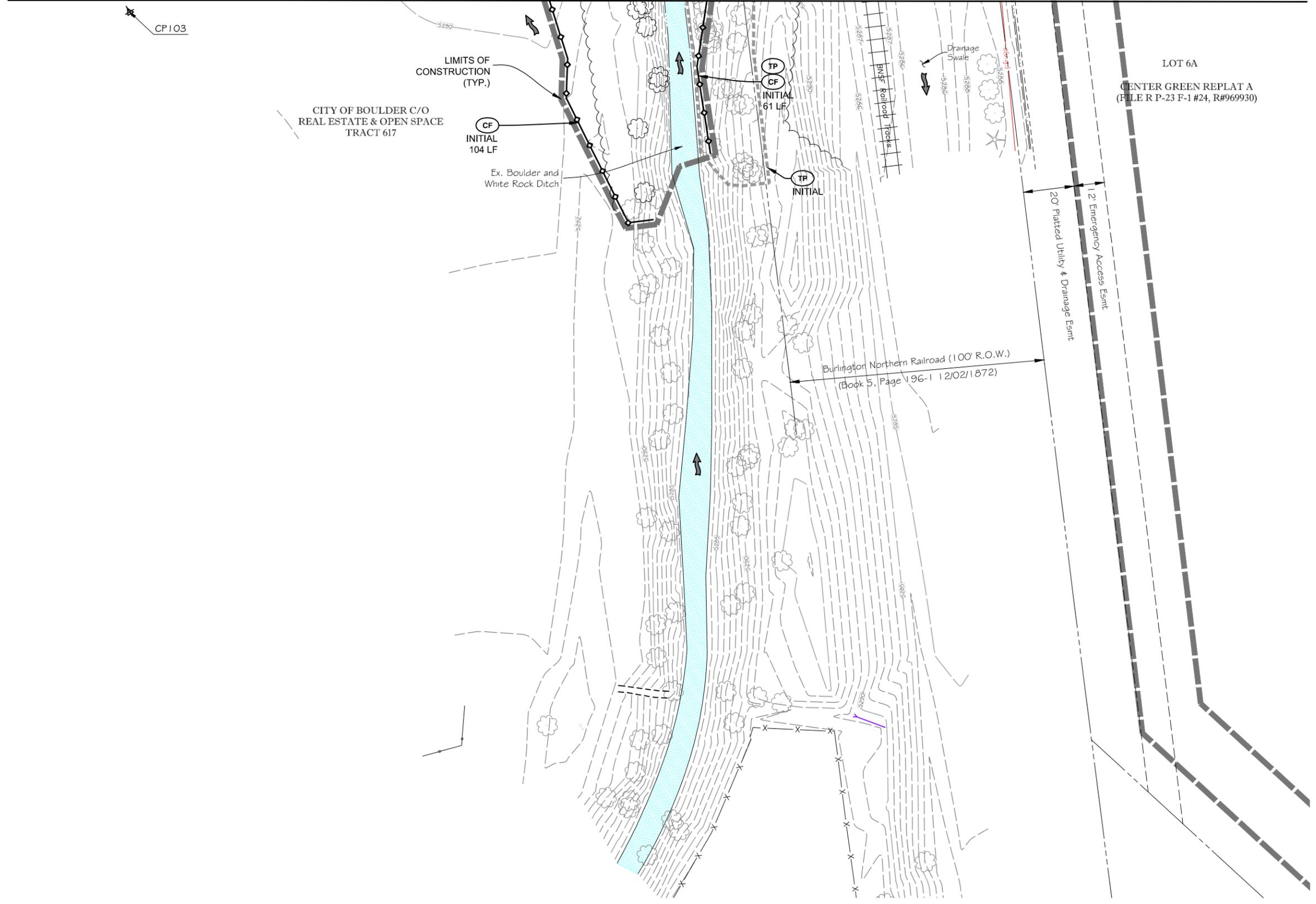
As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - INITIAL</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-7

Project No./Code
STM 110-081
18405
Sheet Number: 37

MATCHLINE - SEE SHEET SM-7



PLOTTED: 6/19/2015 10:15:30 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL.DWG

Computer File Information	
Creation Date: 10/01/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_INITIAL.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



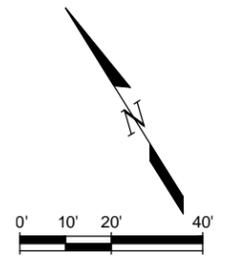
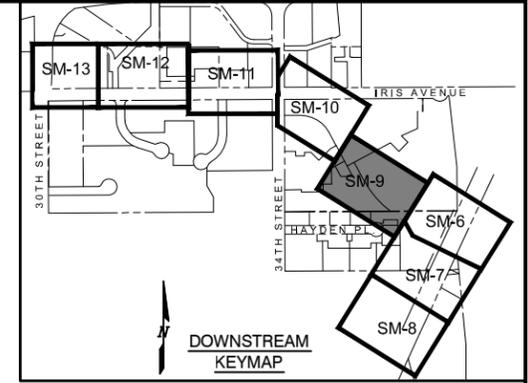
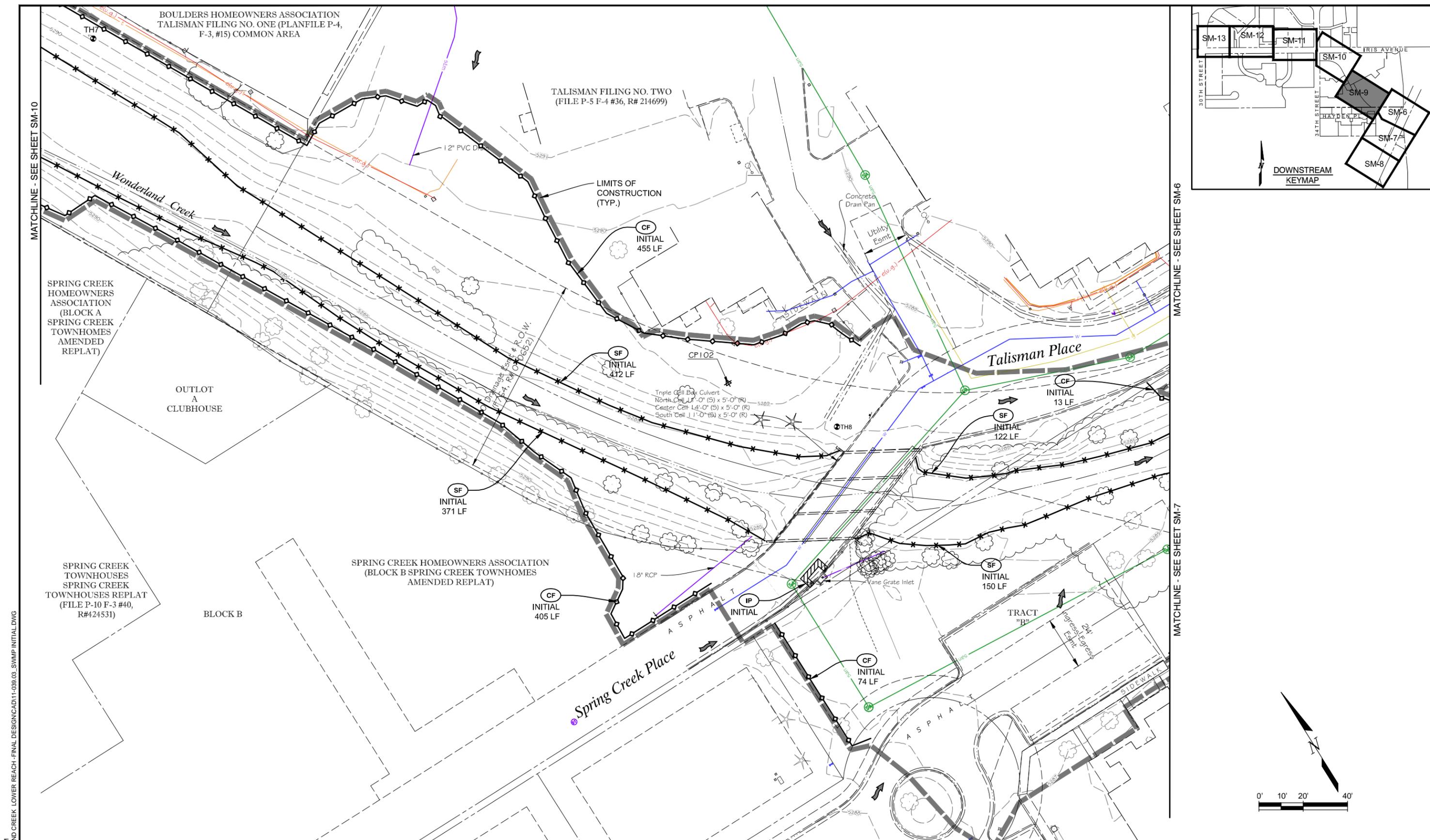
Sheet Revisions		
Date:	Comments	Init.
<input type="checkbox"/>		

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INITIAL			
Designer:	MKN	Structure Numbers	
Detailer:	JHK	Structure Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-8

Project No./Code	STM 110-081
	18405
Sheet Number:	38



Computer File Information	
Creation Date: 10/01/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INITIAL.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

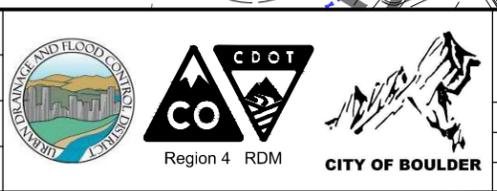
**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



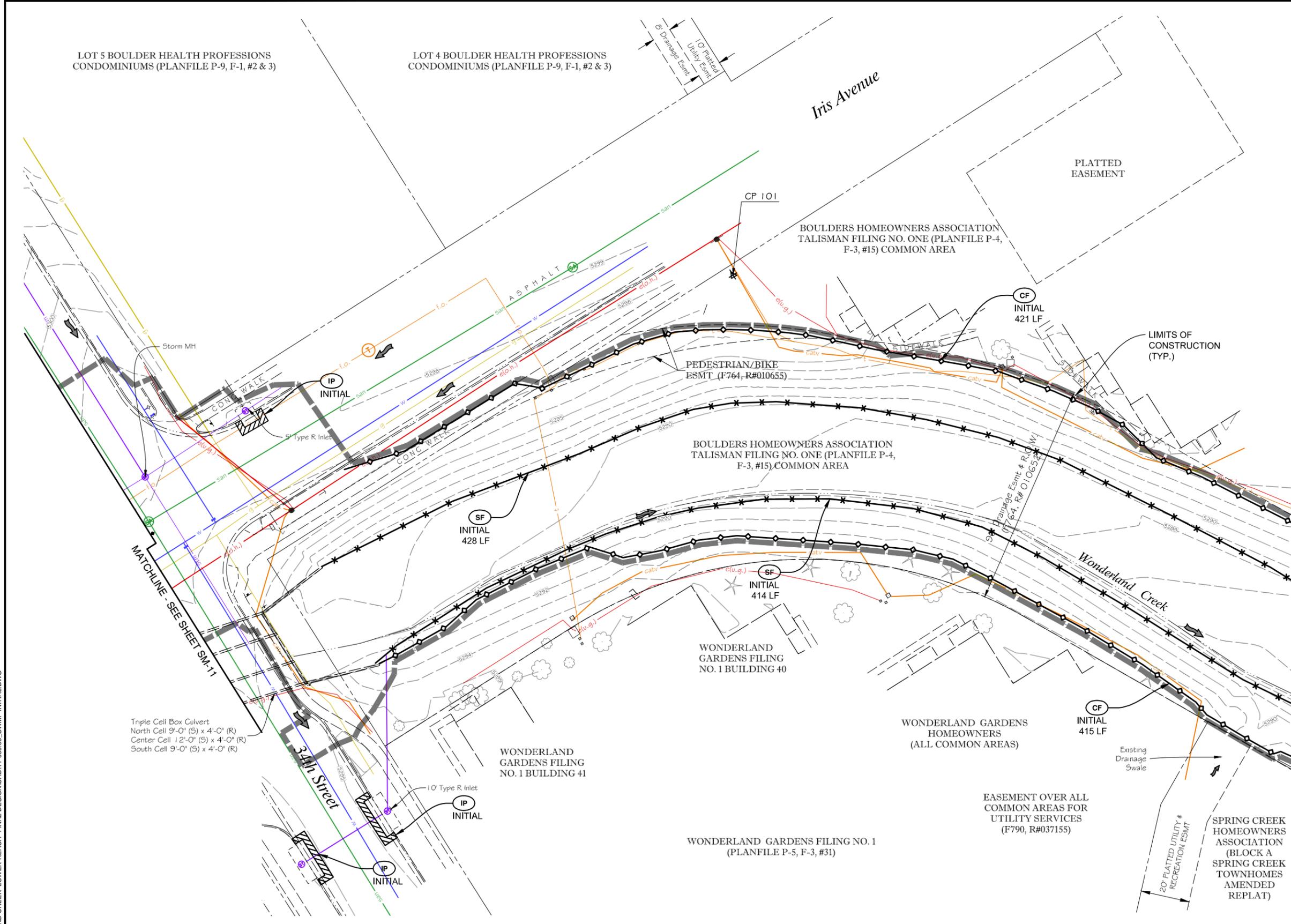
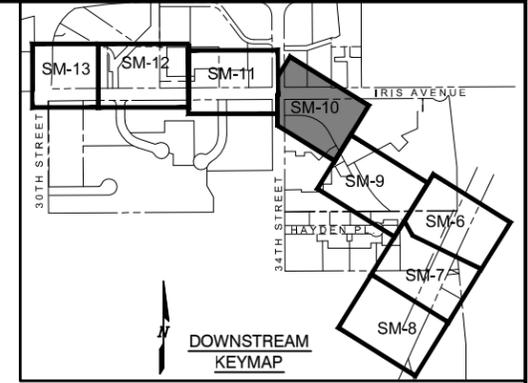
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - INITIAL</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-9

Project No./Code	STM 110-081
	18405
Sheet Number:	39

PLOTTED: 6/19/2015 10:15:35 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INITIAL.DWG

LOT 5 BOULDER HEALTH PROFESSIONS  
CONDOMINIUMS (PLANFILE P-9, F-1, #2 & 3)

LOT 4 BOULDER HEALTH PROFESSIONS  
CONDOMINIUMS (PLANFILE P-9, F-1, #2 & 3)



DOWNSTREAM  
KEYMAP



PLOTTED: 6/19/2015 10:15:40 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL.DWG

Computer File Information	
Creation Date: 10/01/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_INITIAL.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



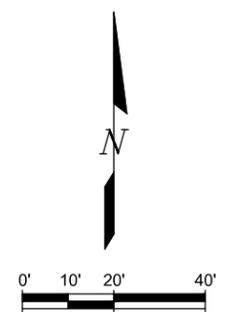
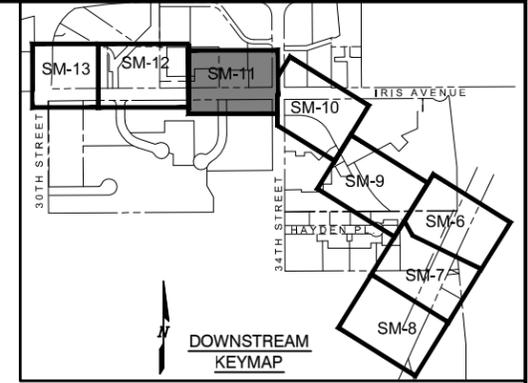
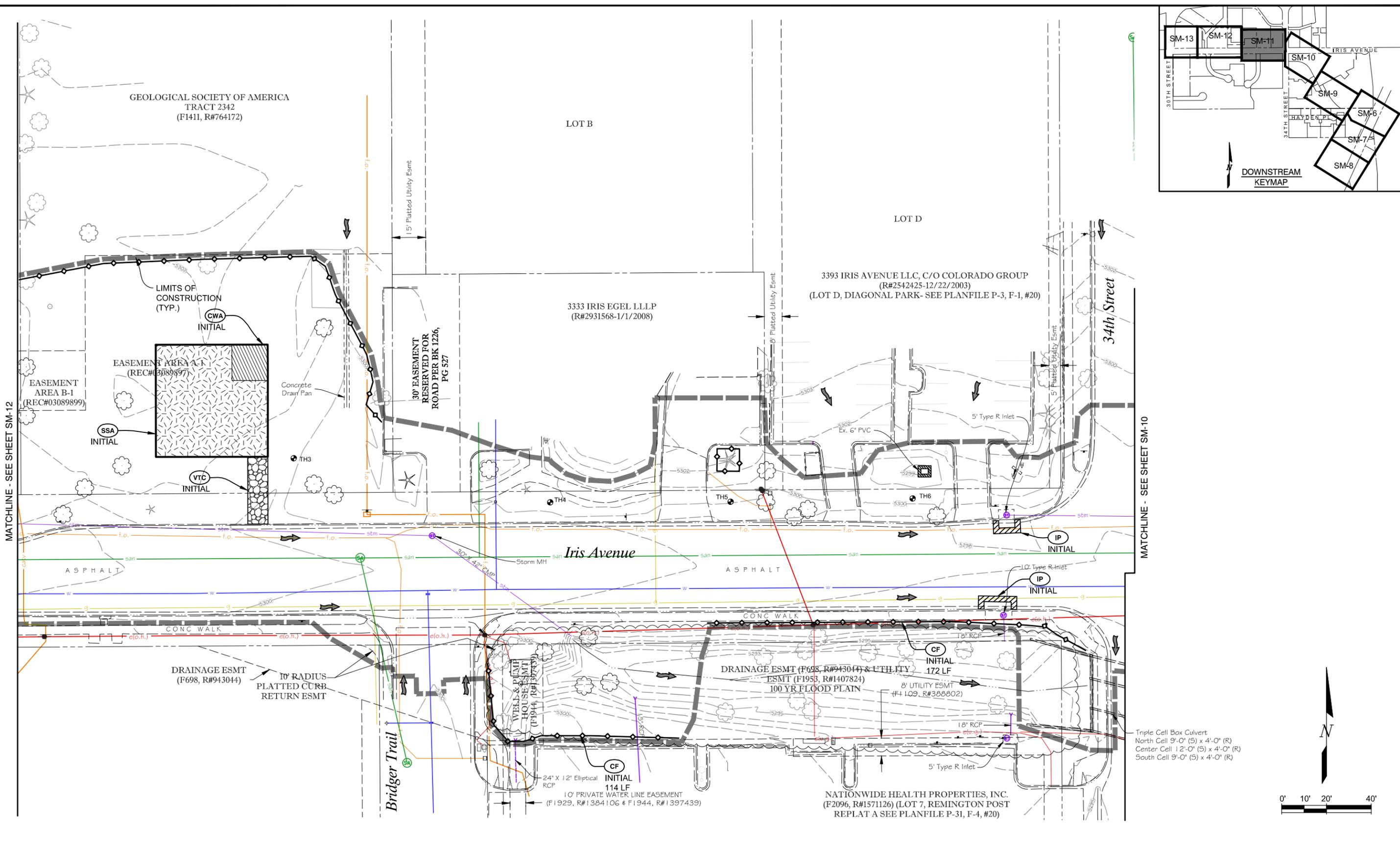
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

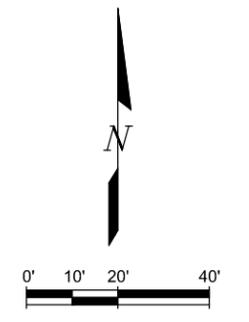
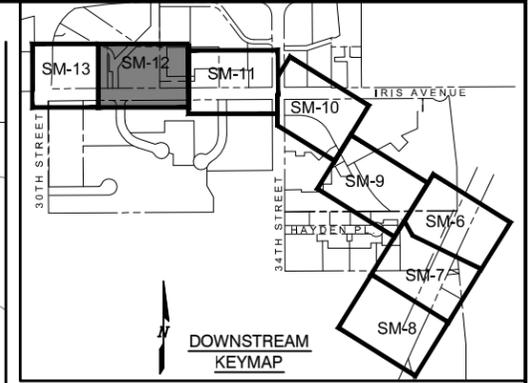
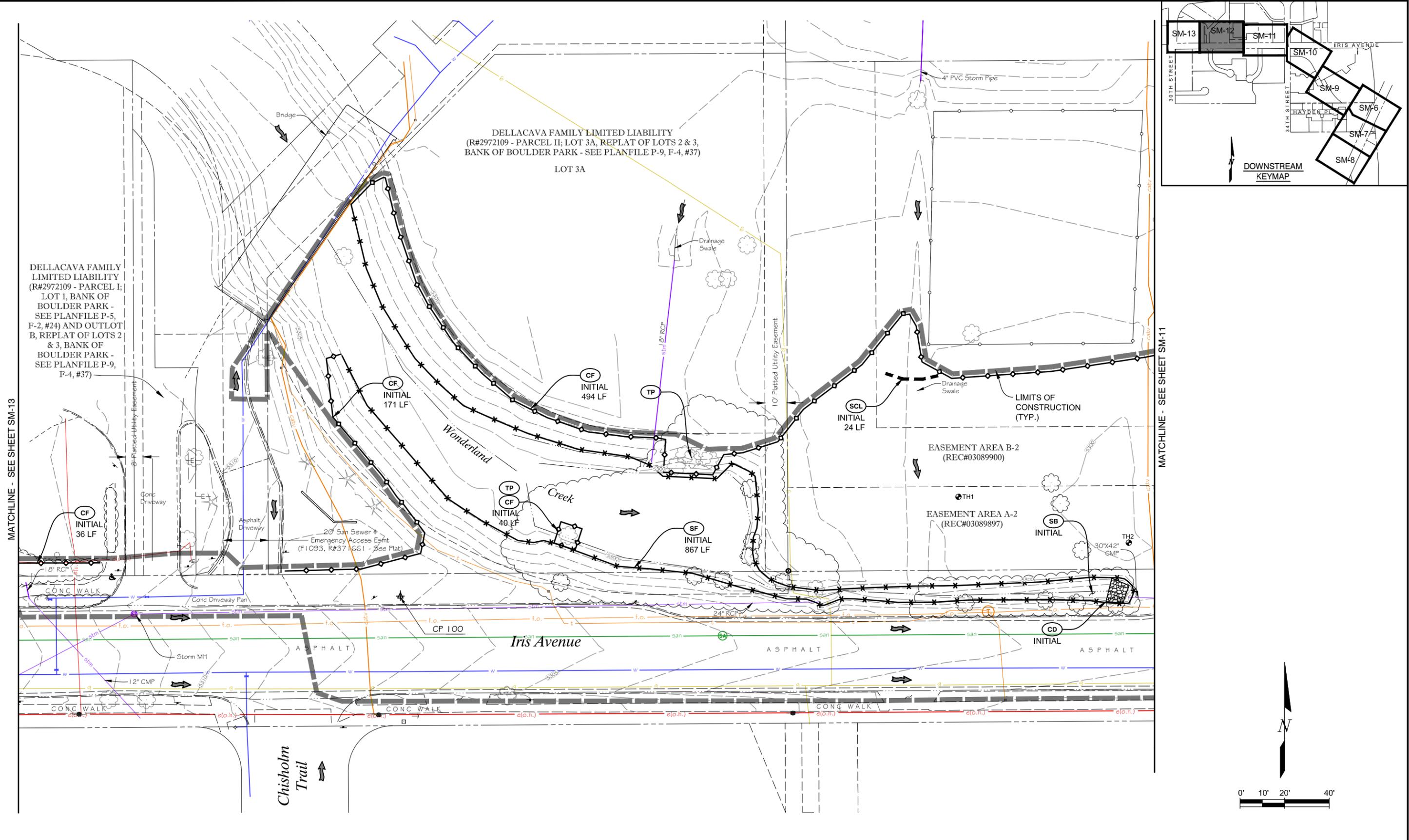
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INITIAL			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-10

Project No./Code
STM 110-081
18405
Sheet Number: 40

PLOTTED: 6/19/2015 10:15:45 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL.DWG



PLOTTED: 6/19/2015 10:15:50 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL.DWG



Computer File Information	
Creation Date: 10/01/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_INITIAL.dwg	
AutoCAD 2014	Scale: AS SHOWN FEET

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



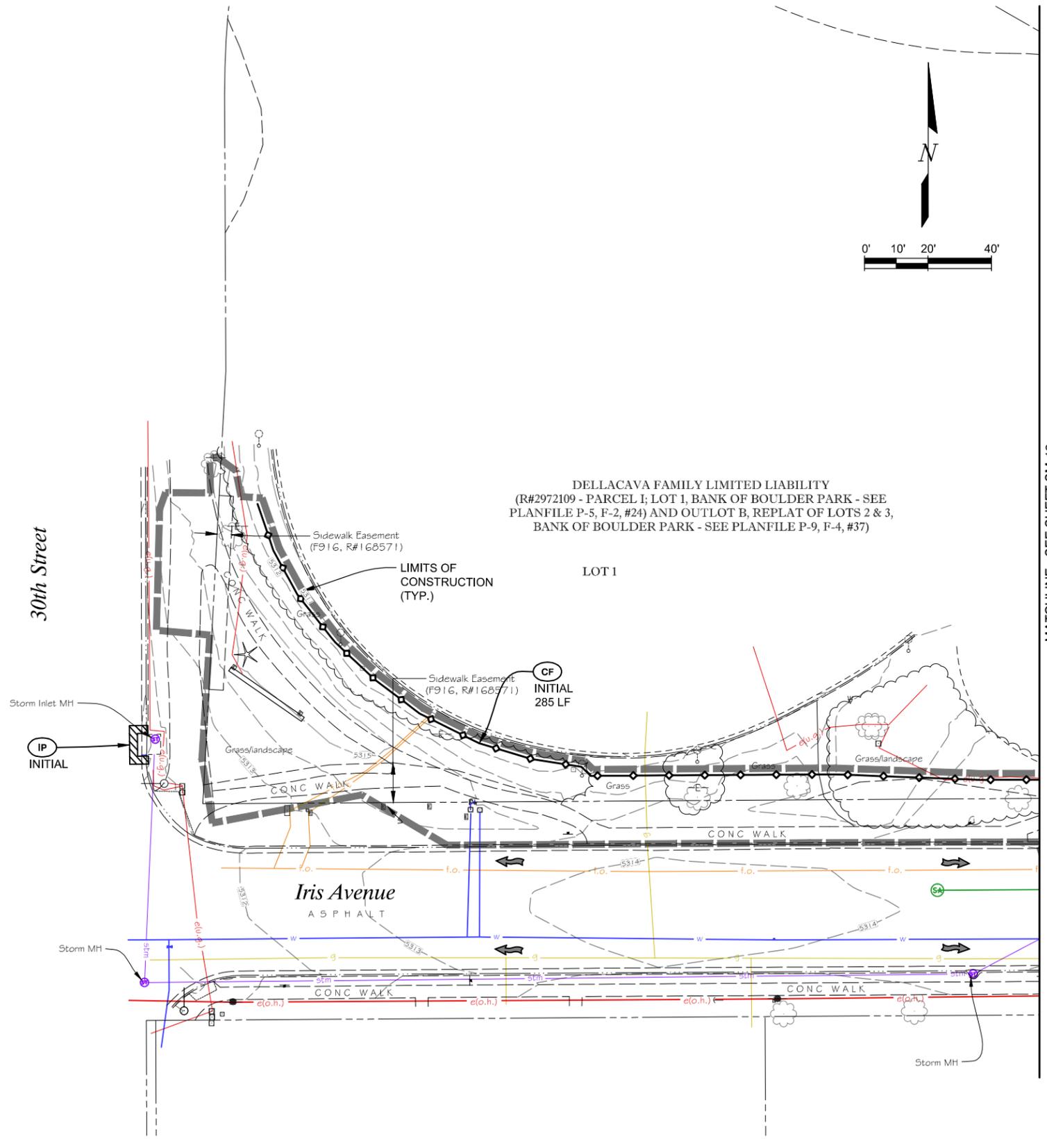
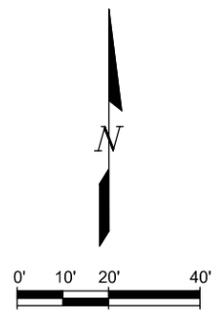
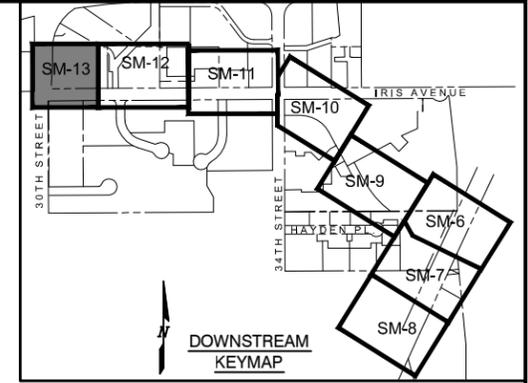
Sheet Revisions		
Date:	Comments	Init.

**As Constructed**  
 No Revisions:  
 Revised:  
 Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - INITIAL</b>			
Designer:	MKN	Structure Numbers:	
Detailer:	JHK	Subset Sheets:	SM-12
Sheet Subset:	SWMP		

Project No./Code	STM 110-081
	18405
Sheet Number:	42



DELLACAVA FAMILY LIMITED LIABILITY  
 (R#2972109 - PARCEL I; LOT 1, BANK OF BOULDER PARK - SEE  
 PLANFILE P-5, F-2, #24) AND OUTLOT B, REPLAT OF LOTS 2 & 3,  
 BANK OF BOULDER PARK - SEE PLANFILE P-9, F-4, #37)

LOT 1

30th Street

Iris Avenue  
 ASPHALT

MATCHLINE - SEE SHEET SM-12



PLOTTED: 6/19/2015 10:15:56 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL.DWG

Computer File Information	
Creation Date: 10/01/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_INITIAL.dwg	
AutoCAD 2014	Scale: AS SHOWN FEET

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

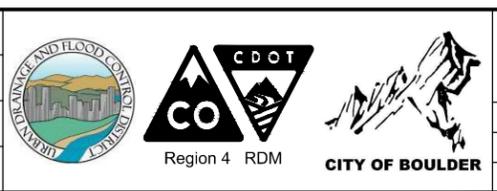
**MULLER**

MEC PROJECT NO. 11039.03



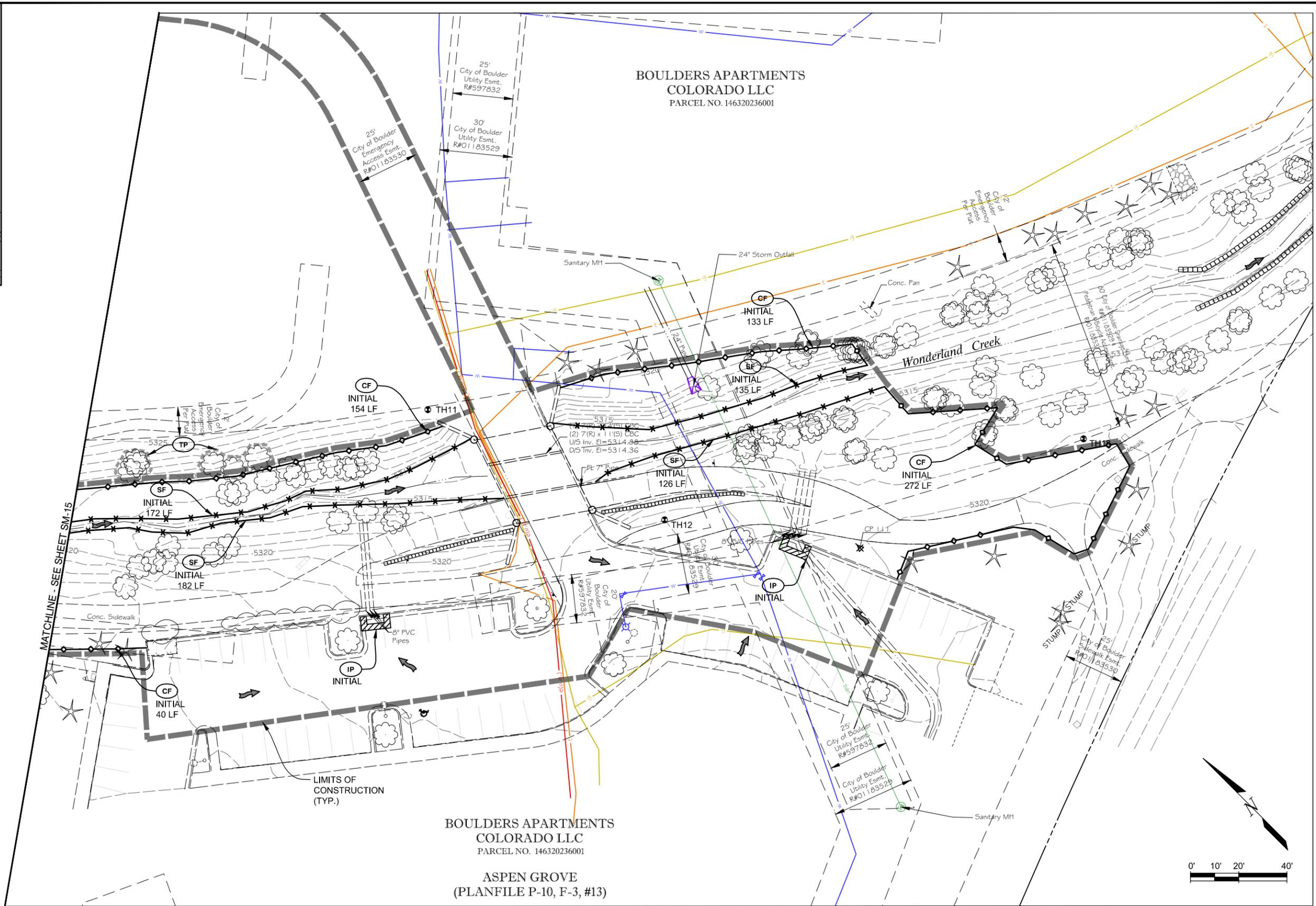
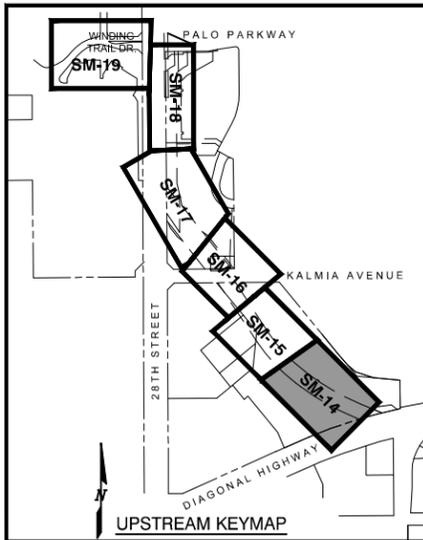
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INITIAL			
Designer:	MKN	Structure	Numbers
Detailer:	JHK		
Sheet Subset:	SWMP	Subset Sheets:	SM-13

Project No./Code
STM 110-081
18405
Sheet Number: 43



BOULDERS APARTMENTS  
 COLORADO LLC  
 PARCEL NO. 146320236001  
 ASPEN GROVE  
 (PLANFILE P-10, F-3, #13)

PLOTTED: 6/19/2015 10:16:25 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INITIAL NORTH.DWG

Computer File Information	
Creation Date: 11/11/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INITIAL NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



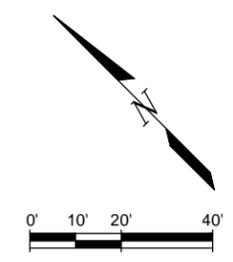
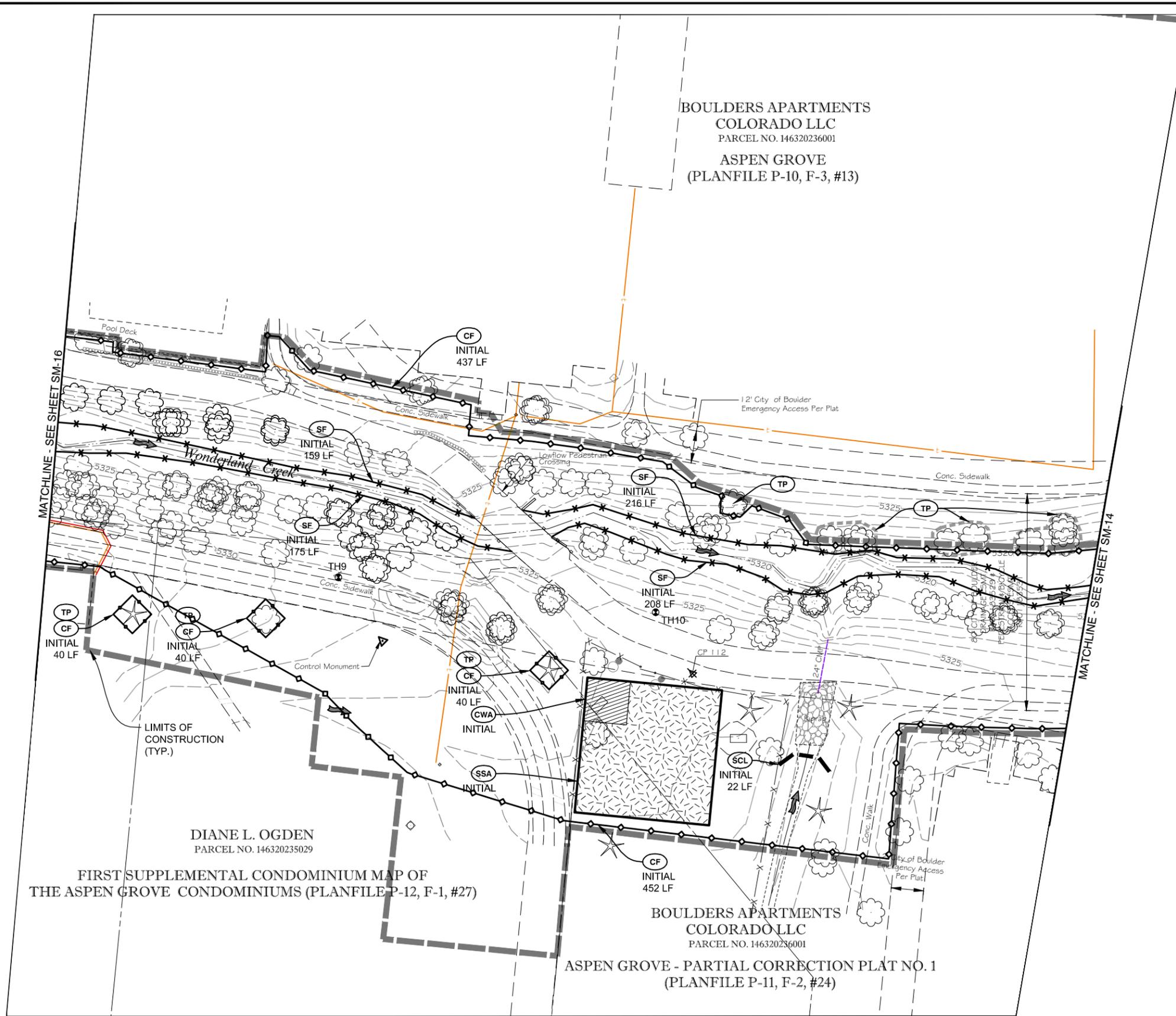
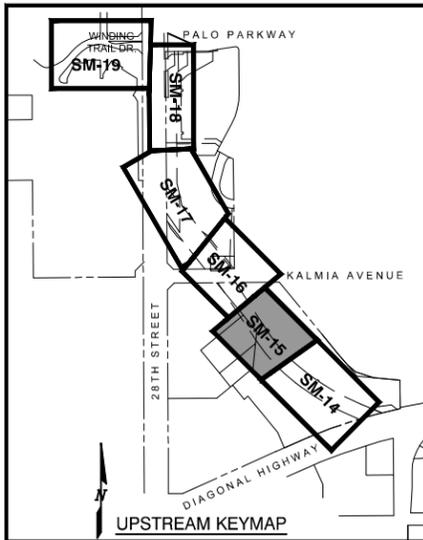
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INITIAL			
Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	SWMP	Subset Sheets:	SM-14

Project No./Code
STM 110-081
18405
Sheet Number: 44



PLOTTED: 6/19/2015 10:16:30 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL\_NORTH.DWG

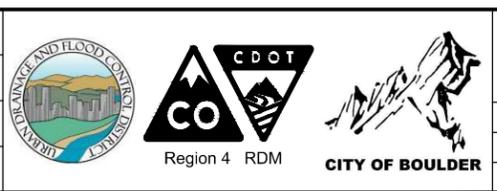
Computer File Information	
Creation Date: 11/11/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_INITIAL_NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



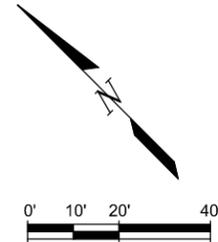
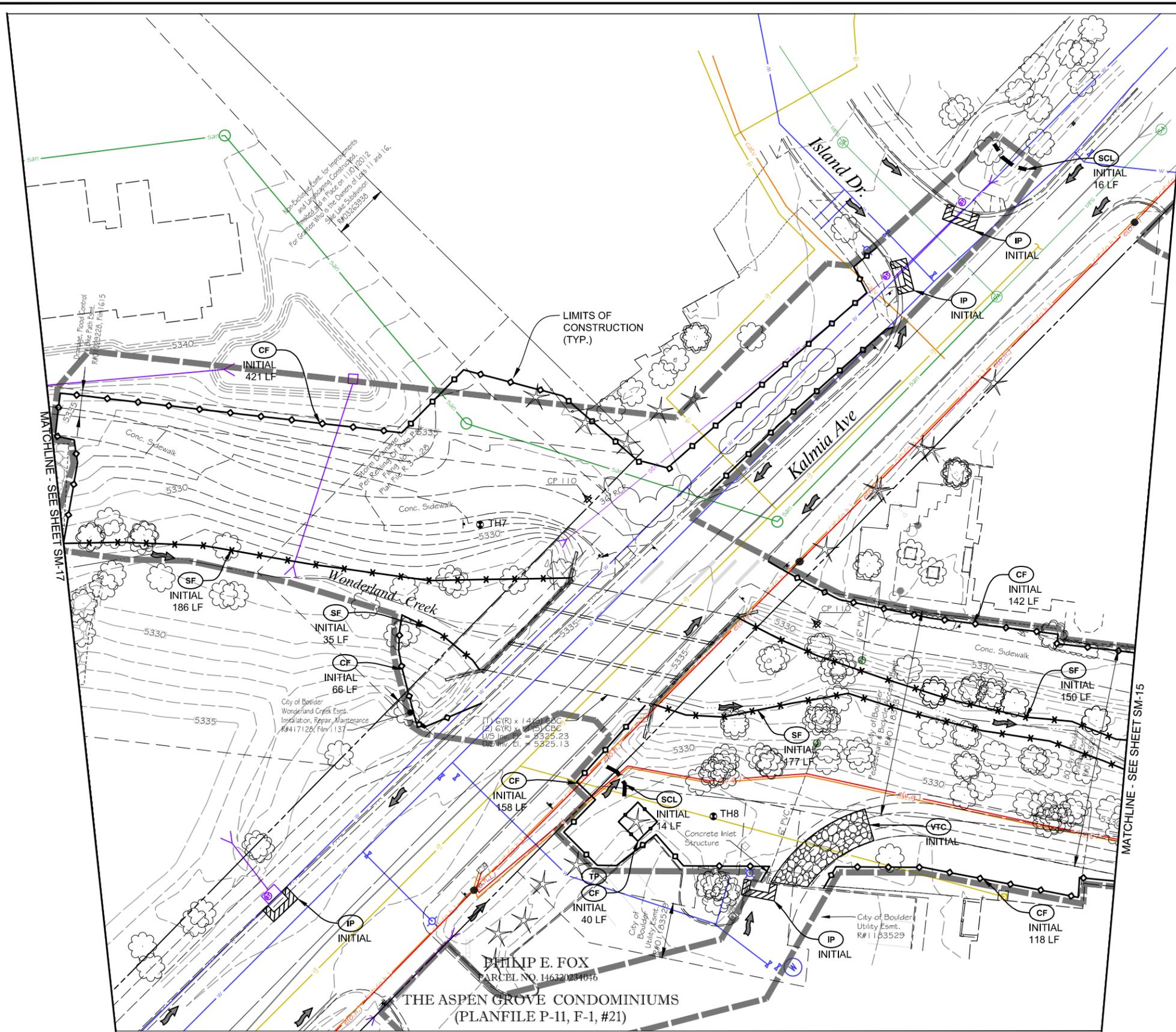
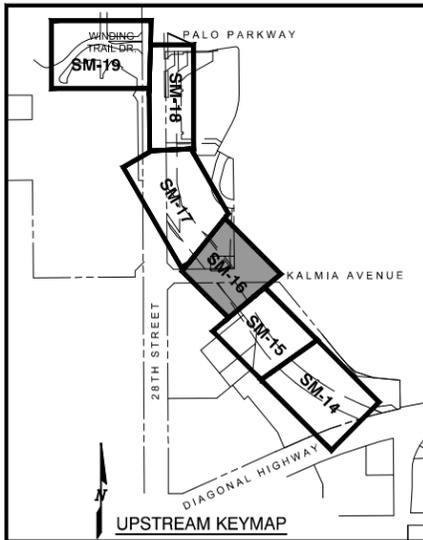
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INITIAL			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-15

Project No./Code
STM 110-081
18405
Sheet Number: 45



PLOTTED: 6/19/2015 10:16:35 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INITIAL NORTH.DWG

Computer File Information	
Creation Date: 11/11/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INITIAL NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

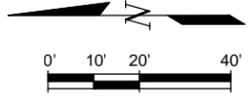
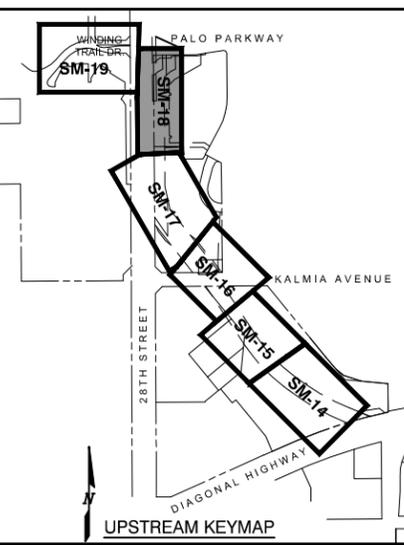
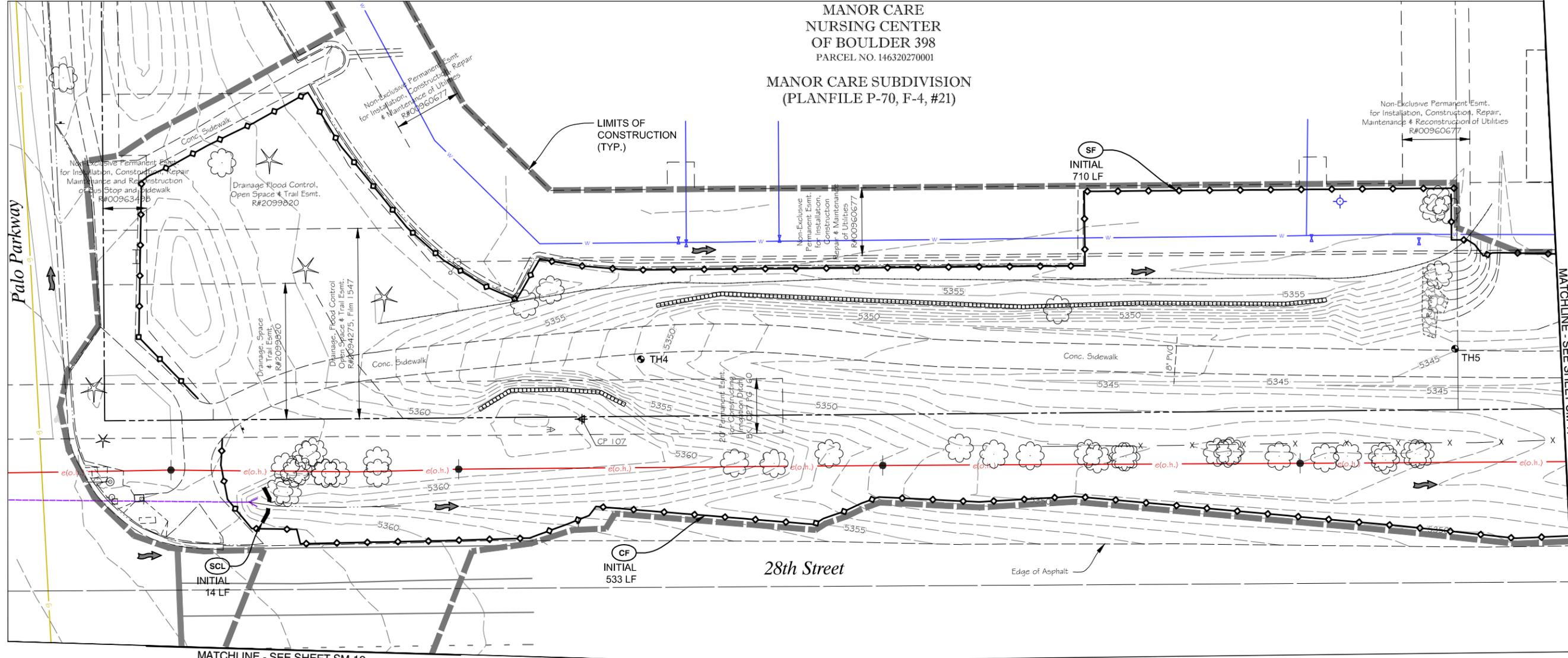
Region 4 RDM  
**CITY OF BOULDER**

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		
<b>STORMWATER MANAGEMENT PLAN - INITIAL</b>		
Designer: MKN	Structure Numbers	
Detailer: JHK		
Sheet Subset: SWMP	Subset Sheets: SM-16	

Project No./Code
STM 110-081
18405
Sheet Number: 46



MANOR CARE  
NURSING CENTER  
OF BOULDER 398  
PARCEL NO. 146320270001  
MANOR CARE SUBDIVISION  
(PLANFILE P-70, F-4, #21)



Computer File Information

Creation Date: 11/11/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INITIAL NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

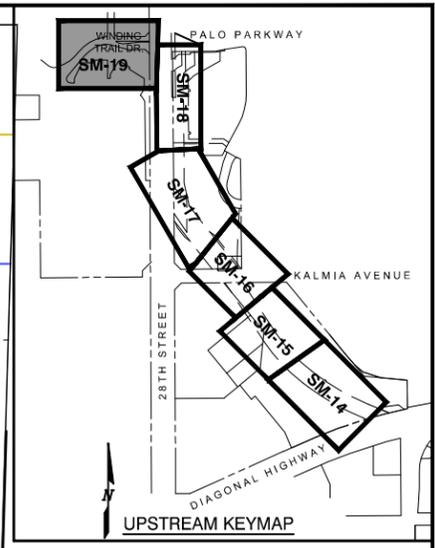
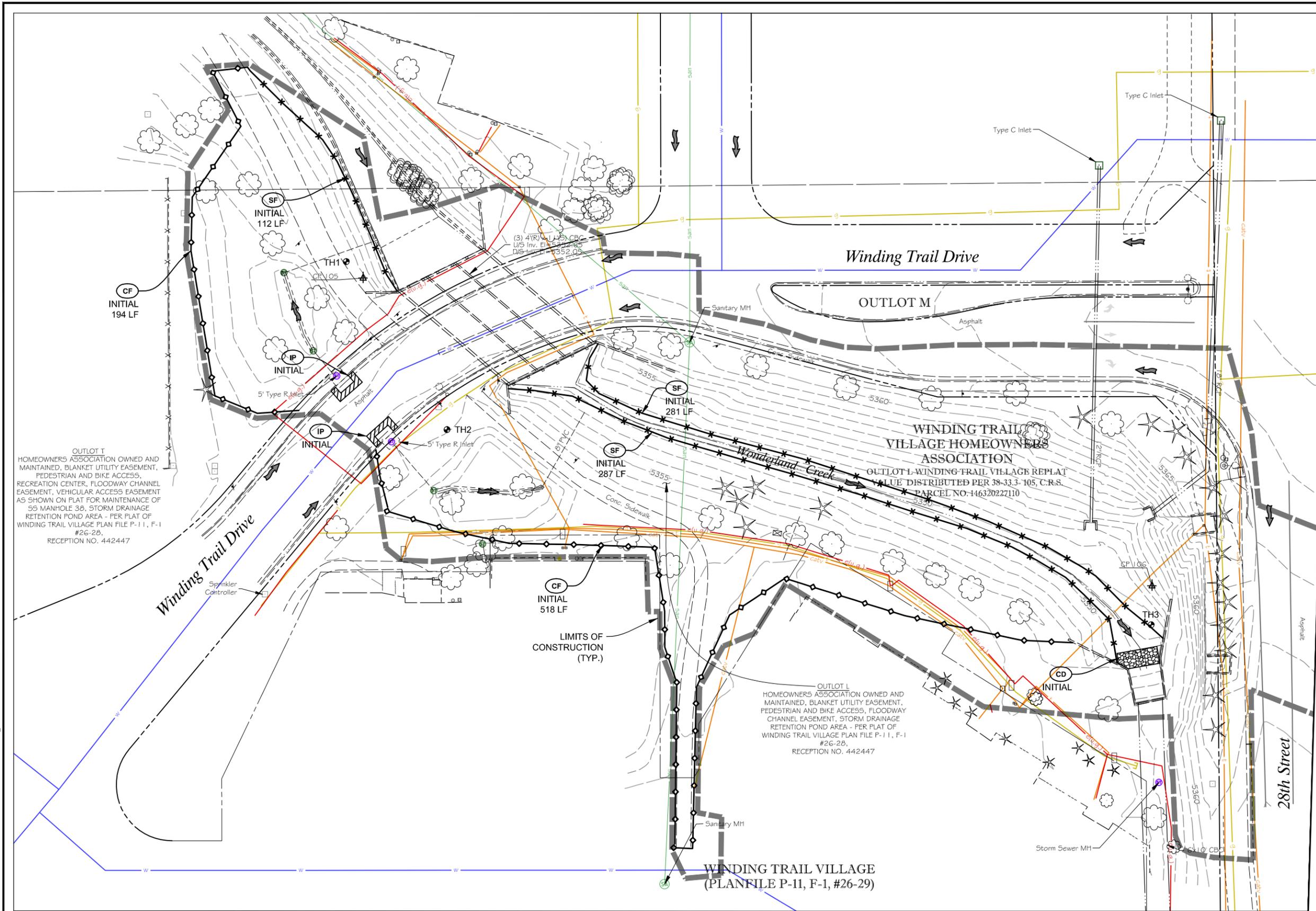
As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		
STORMWATER MANAGEMENT PLAN - INITIAL		
Designer: MKN	Structure Numbers	
Detailer: JHK		
Sheet Subset: SWMP	Subset Sheets: SM-18	

Project No./Code	STM 110-081
18405	
Sheet Number:	48

PLOTTED: 6/19/2015 10:16:45 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INITIAL NORTH.DWG



OUTLOT T  
 HOMEOWNERS ASSOCIATION OWNED AND MAINTAINED, BLANKET UTILITY EASEMENT, PEDESTRIAN AND BIKE ACCESS, RECREATION CENTER, FLOODWAY CHANNEL EASEMENT, VEHICULAR ACCESS EASEMENT AS SHOWN ON PLAT FOR MAINTENANCE OF 59 MANHOLE 36, STORM DRAINAGE RETENTION POND AREA - PER PLAT OF WINDING TRAIL VILLAGE PLAN FILE P-11, F-1 #26-28, RECEPTION NO. 442447

OUTLOT L  
 HOMEOWNERS ASSOCIATION OWNED AND MAINTAINED, BLANKET UTILITY EASEMENT, PEDESTRIAN AND BIKE ACCESS, FLOODWAY CHANNEL EASEMENT, STORM DRAINAGE RETENTION POND AREA - PER PLAT OF WINDING TRAIL VILLAGE PLAN FILE P-11, F-1 #26-28, RECEPTION NO. 442447

MATCHLINE - SEE SHEET SM-18

PLOTTED: 6/19/2015 10:16:50 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INITIAL\_NORTH.DWG

Computer File Information	
Creation Date: 11/11/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_INITIAL_NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03

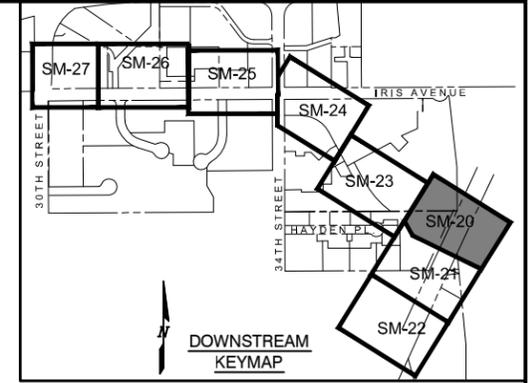
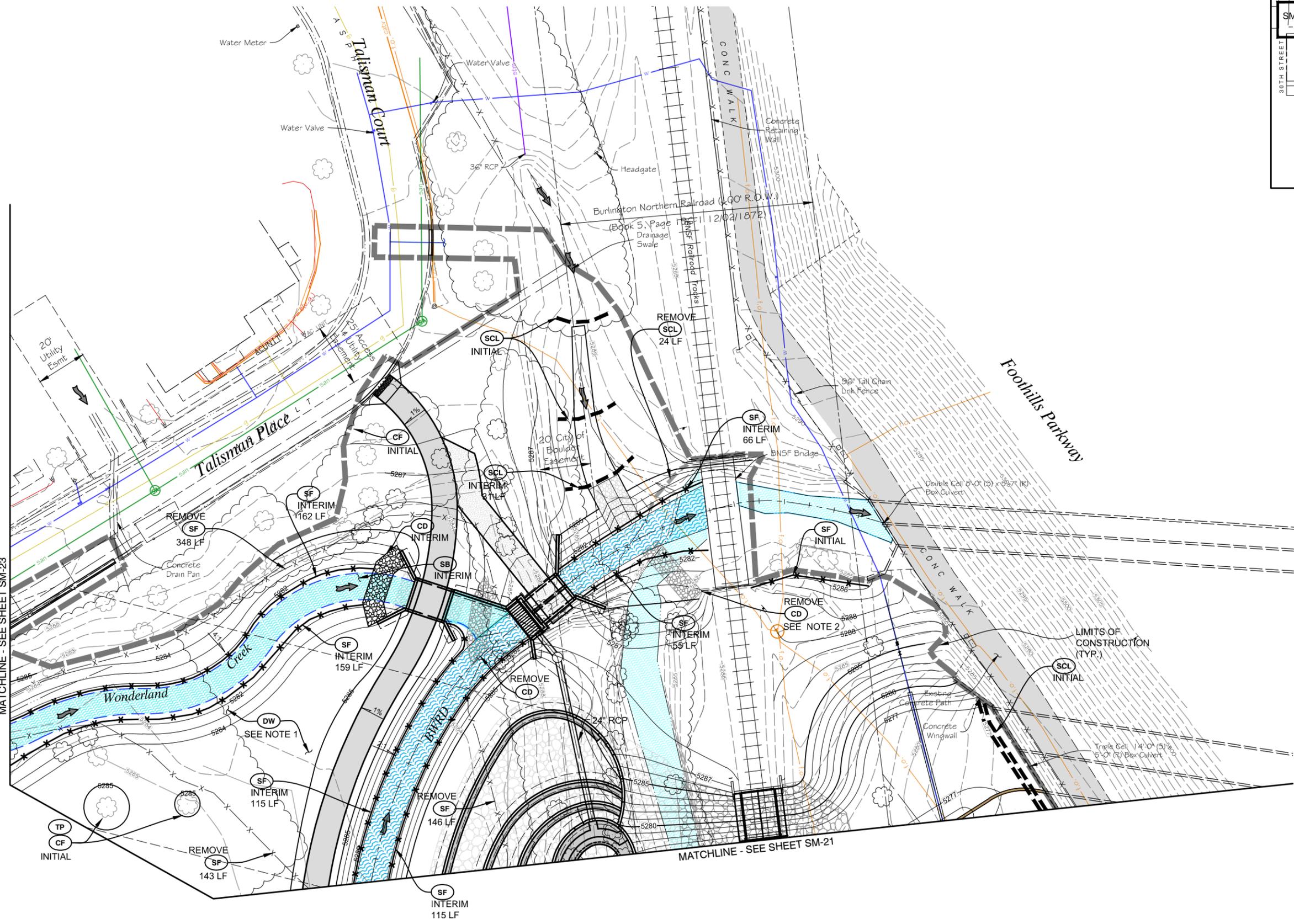


Sheet Revisions		
Date:	Comments	Init.

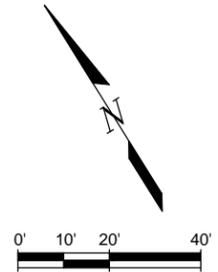
As Constructed
No Revisions:
Revised:
Void:

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INITIAL			
Designer:	MKN	Structure	Numbers
Detailer:	JHK		
Sheet Subset:	SWMP	Subset Sheets:	SM-19

Project No./Code
STM 110-081
18405
Sheet Number: 49

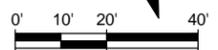
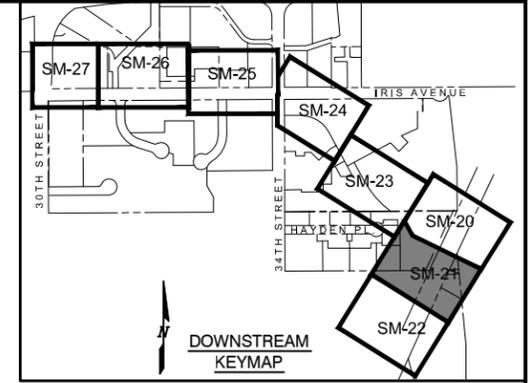
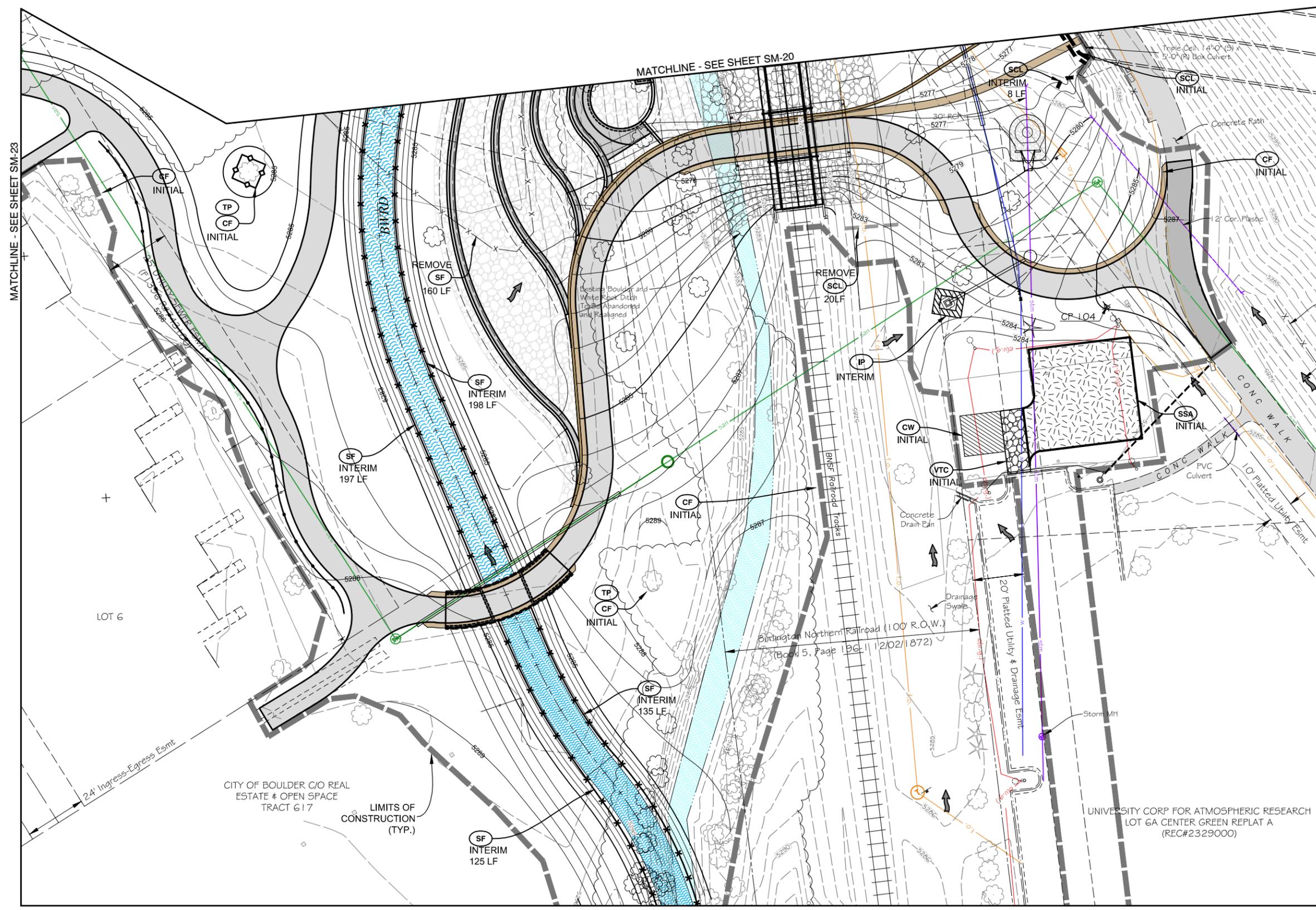


- NOTES:**
1. IN ADDITION TO CREEK FLOWS, THE AREA UPSTREAM OF THE CONFLUENCE OF WONDERLAND CREEK AND THE BOULDER WHITE ROCK DITCH IS SUBJECT TO FLOODING FROM DITCH BACKWATER. CONTRACTOR SHALL COORDINATE THE TIMING OF CONSTRUCTION ACTIVITIES WITH THE DITCH LOW FLOW OR NO FLOW TIME PERIOD, PROVIDE PROTECTION FROM BACKWATER, DEWATER CREEK FLOWS AND DITCH BACKWATER, OR SOME COMBINATION OF THESE ACTIVITIES.
  2. A CHECK DAM SHALL BE INSTALLED IN THE DITCH ONLY DURING CONSTRUCTION OF DITCH IMPROVEMENTS WHEN NO DITCH FLOW IS PRESENT.



PLOTTED: 6/19/2015 10:18:02 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM.DWG

<b>Computer File Information</b> Creation Date: 10/09/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP INTERIM.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date:	Comments	Init.													<b>As Constructed</b> No Revisions: Revised: Void:				WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - INTERIM</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: SWMP Subset Sheets: SM-20		Project No./Code <b>STM 110-081</b> <b>18405</b> Sheet Number: <b>50</b>	
Date:	Comments	Init.																												



PLOTTED: 6/19/2015 10:18:17 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM.DWG

Computer File Information	
Creation Date: 10/09/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - INTERIM</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-21

Project No./Code
STM 110-081
18405
Sheet Number: 51

MATCHLINE - SEE SHEET SM-21

CP 103

SF INTERIM 70 LF  
 CF INITIAL  
 SF INTERIM 42 LF  
 CF INITIAL

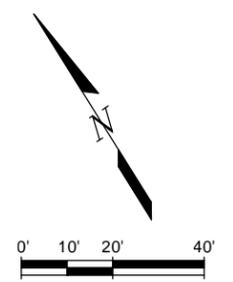
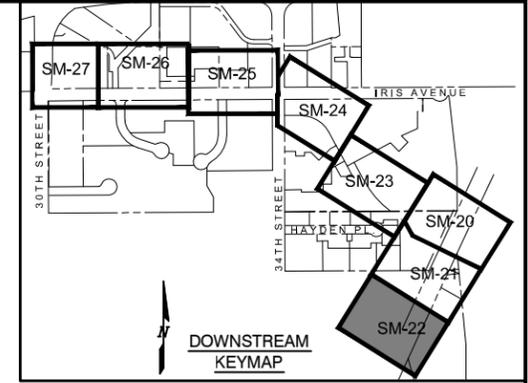
LIMITS OF CONSTRUCTION (TYP.)  
 Existing Boulder and White Rock Ditch

Burlington Northern Railroad (100' R.O.W.)  
 (Book 5, Page 196-1 12102/1872)

LIMITS OF CONSTRUCTION

20' Platted Utility & Drainage Easmt  
 21' Emergency Access Easmt

LOT 6A  
 CENTER GREEN REPLAT A  
 (FILE R P-23 F-1 #24, R#969930)



PLOTTED: 6/19/2015 10:18:32 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM.DWG

Computer File Information	
Creation Date: 10/09/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



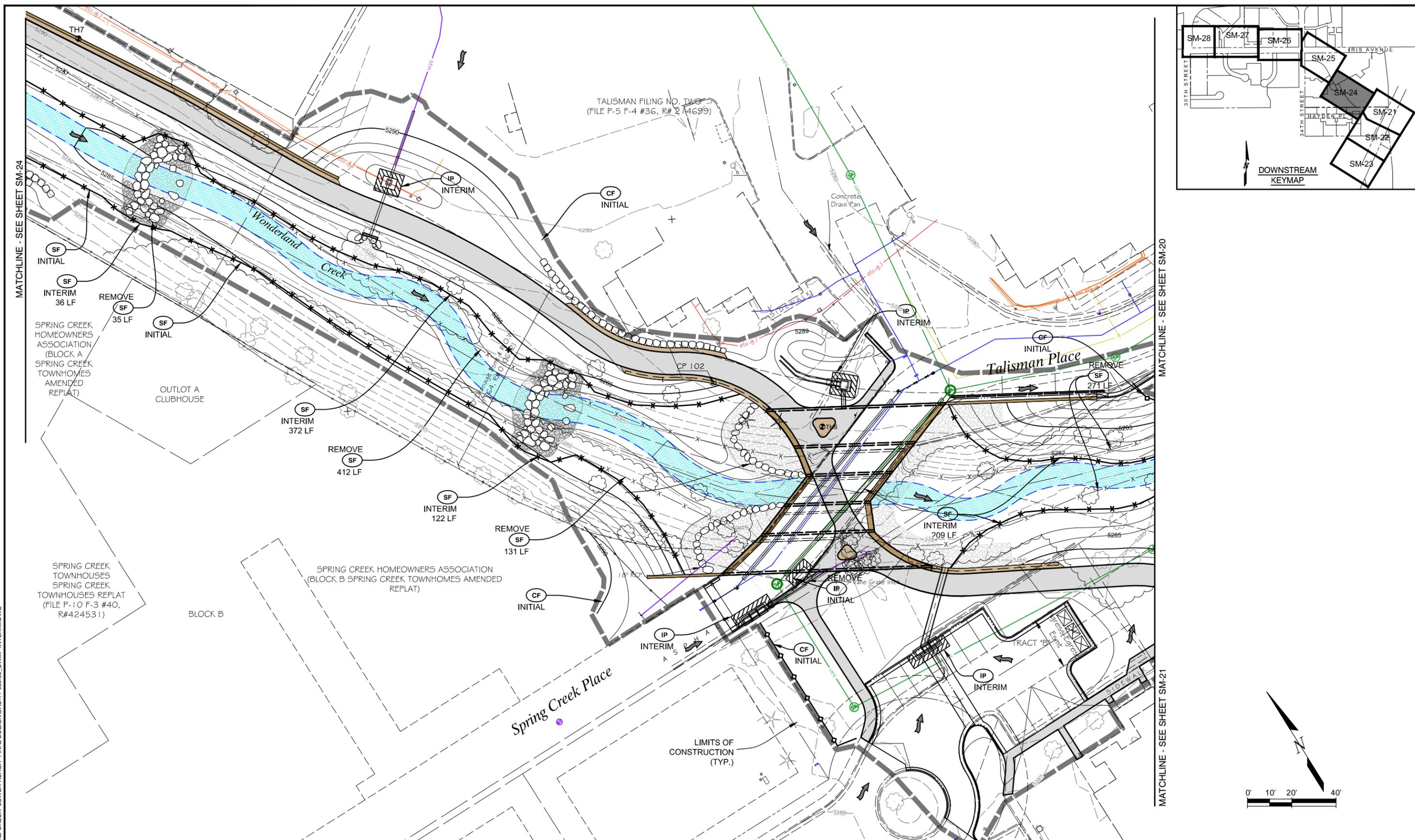
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM  
 CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INTERIM			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-22

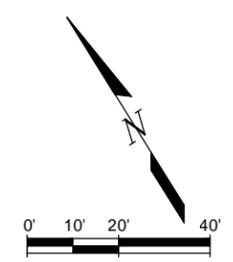
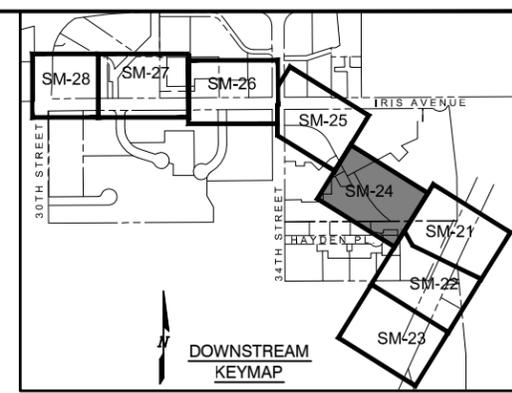
Project No./Code	STM 110-081
	18405
Sheet Number:	52



MATCHLINE - SEE SHEET SM-24

MATCHLINE - SEE SHEET SM-20

MATCHLINE - SEE SHEET SM-21



PLOTTED: 6/19/2015 10:18:47 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM.DWG

<b>Computer File Information</b> Creation Date: 10/09/14      Initials: JHK Last Modification Date: 06/18/15      Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP INTERIM.dwg AutoCAD 2014      Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date:	Comments	Init.													<b>As Constructed</b> No Revisions: Revised: Void:				WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - INTERIM</b> Designer: MKN      Structure Numbers Detailer: JHK      Numbers Sheet Subset: SWMP      Subset Sheets: SM-23		Project No./Code <b>STM 110-081</b> 18405 Sheet Number: <b>53</b>	
Date:	Comments	Init.																												

LOT 5 BOULDER HEALTH PROFESSIONS CONDOMINIUMS (PLANFILE P-9, F-1, #2 & 3)

LOT 4 BOULDER HEALTH PROFESSIONS CONDOMINIUMS (PLANFILE P-9, F-1, #2 & 3)

Iris Avenue

BOULDERS HOMEOWNERS ASSOCIATION TALISMAN FILING NO. ONE (PLANFILE P-4, F-3, #15) COMMON AREA

LIMITS OF CONSTRUCTION (TYP.)

CF INITIAL

Wonderland Creek

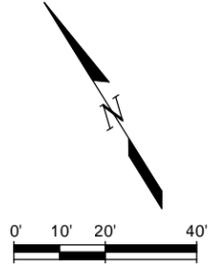
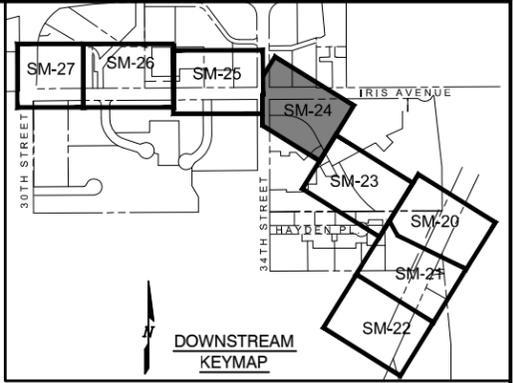
WONDERLAND GARDENS FILING NO. 1 BUILDING 40

WONDERLAND GARDENS HOMEOWNERS (ALL COMMON AREAS)

WONDERLAND GARDENS FILING NO. 1 BUILDING 41

WONDERLAND GARDENS FILING NO. 1 (PLANFILE P-5, F-3, #31)

SPRING CREEK HOMEOWNERS ASSOCIATION (BLOCK A) SPRING CREEK TOWNHOMES AMENDED REPLAT



Triple Cell Box Culvert  
North Cell 9'-0" (S) x 4'-0" (R)  
Center Cell 12'-0" (S) x 4'-0" (R)  
South Cell 9'-0" (S) x 4'-0" (R)

MATCHLINE - SEE SHEET SM-25

MATCHLINE - SEE SHEET SM-23

PLOTTED: 6/19/2015 10:19:03 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM.DWG

Computer File Information	
Creation Date: 10/09/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD., 4100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

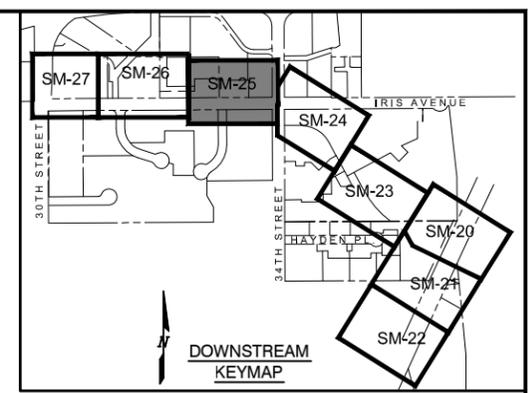
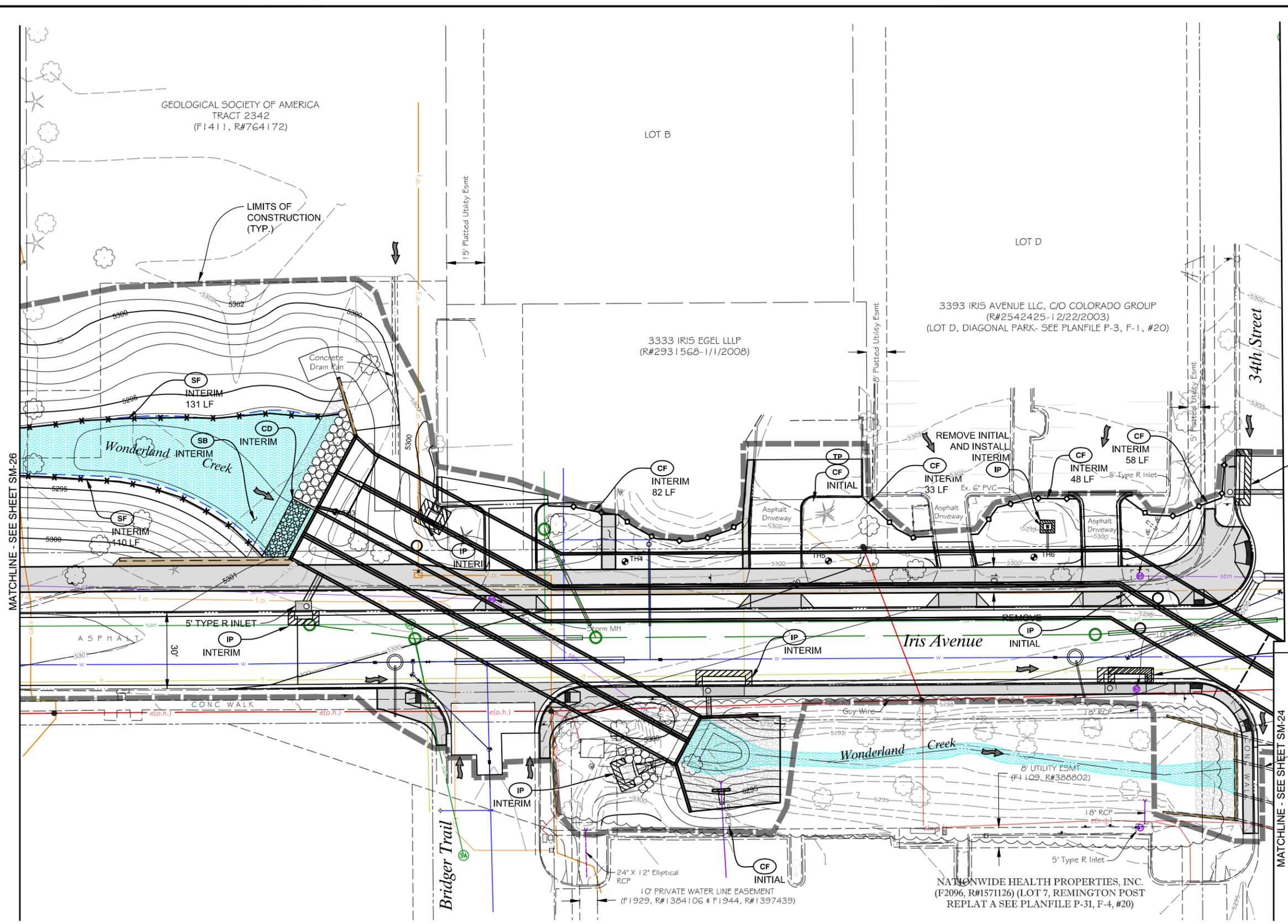
As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM

CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INTERIM			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-24

Project No./Code	STM 110-081
	18405
Sheet Number:	54



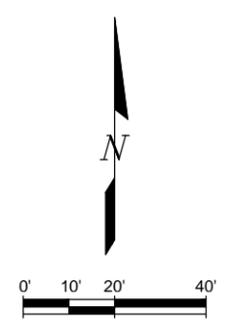
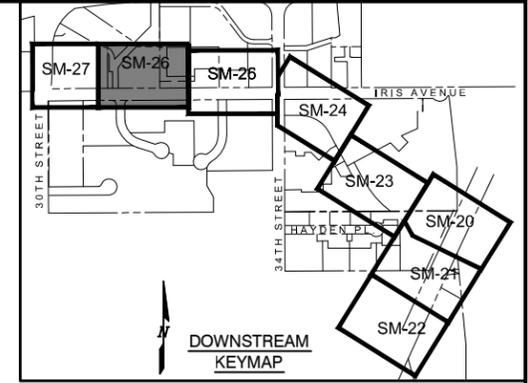
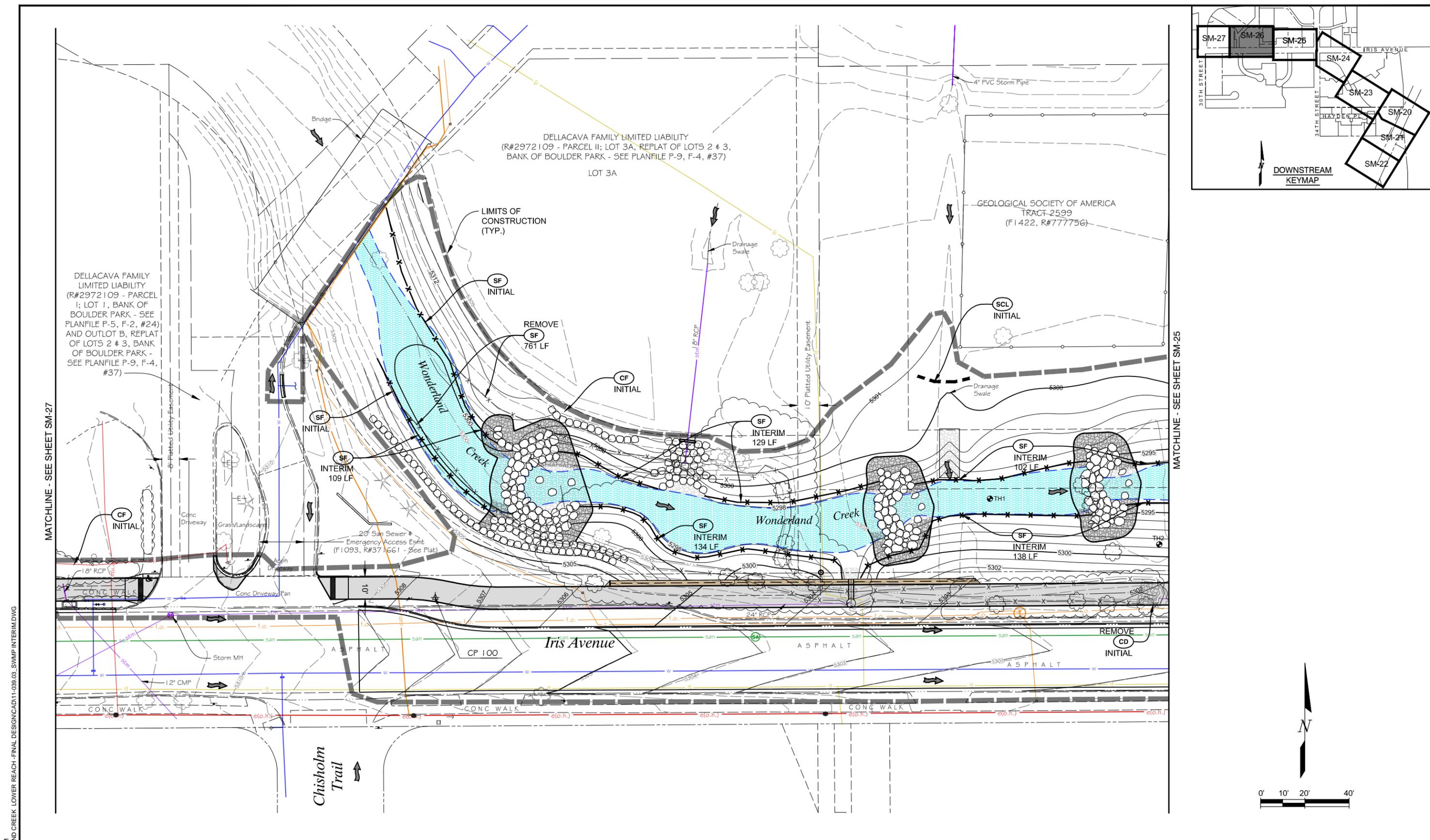
MATCHLINE - SEE SHEET SM-26

MATCHLINE - SEE SHEET SM-24

Triple Cell Box Culvert  
 North Cell 9'-0" (5) x 4'-0" (R)  
 Center Cell 12'-0" (5) x 4'-0" (R)  
 South Cell 9'-0" (5) x 4'-0" (R)

PLOTTED: 6/19/2015 10:19:18 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM.DWG

<b>Computer File Information</b> Creation Date: 10/09/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP INTERIM.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date:      Comments      Init.			<b>As Constructed</b> No Revisions: Revised: Void:						WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - INTERIM</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: SWMP Subset Sheets: SM-25			Project No./Code <b>STM 110-081</b> <b>18405</b> Sheet Number: <b>55</b>	
---	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	---	--



Computer File Information	
Creation Date: 10/09/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

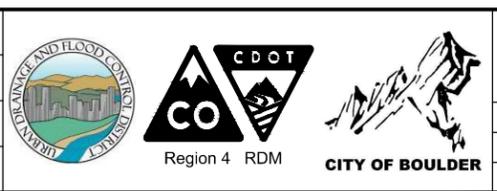
**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

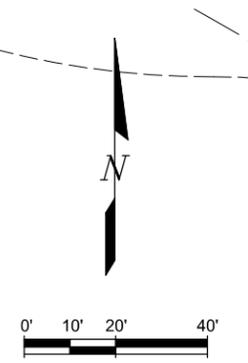
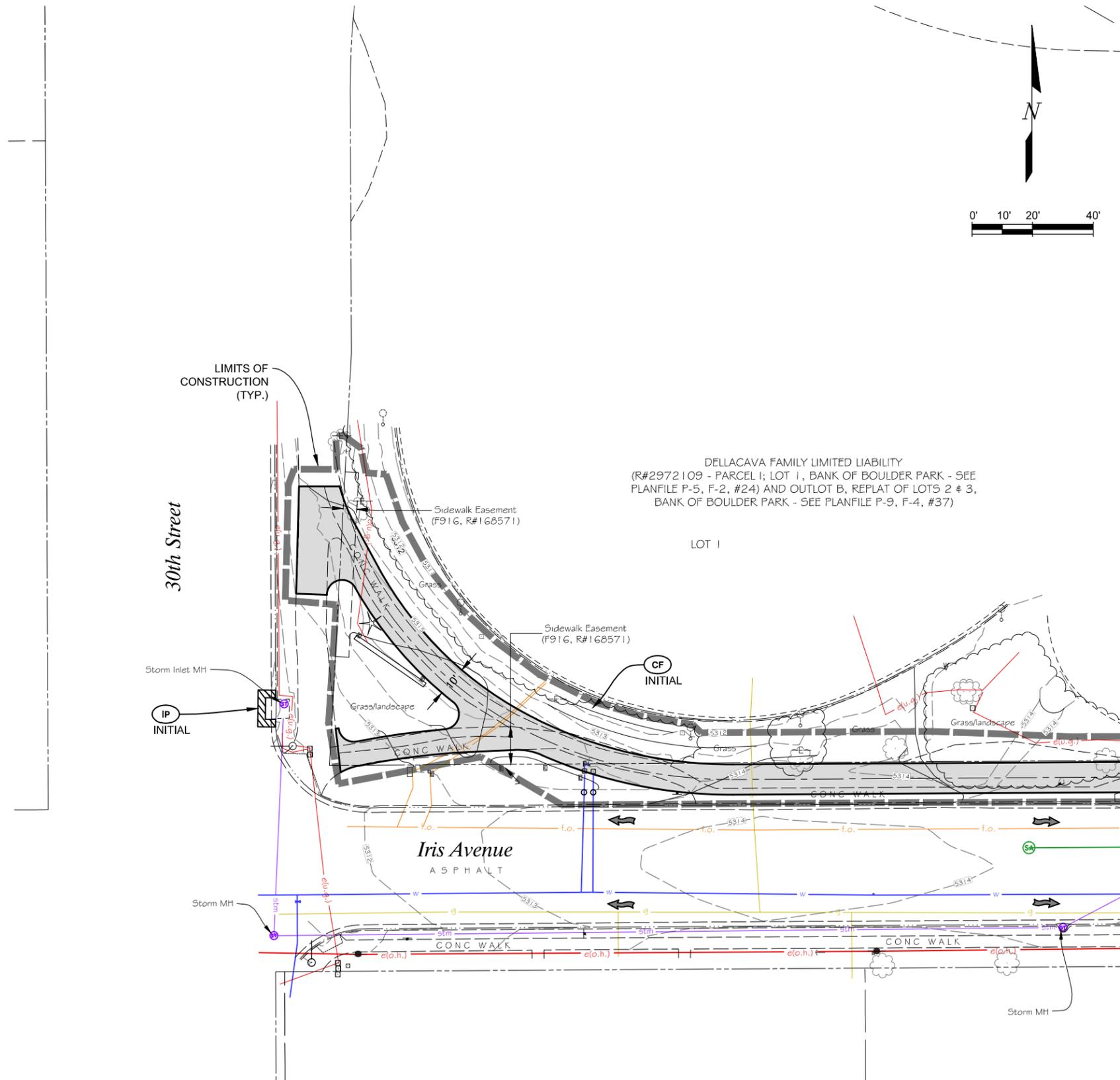
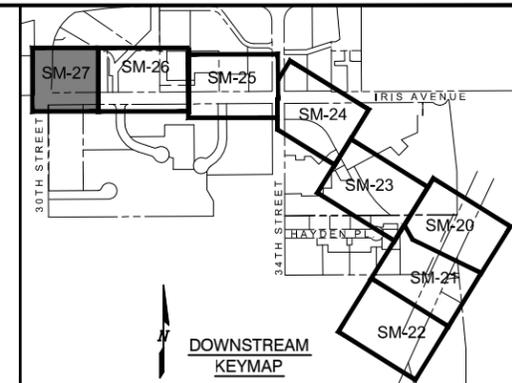
As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - INTERIM</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-26

Project No./Code	STM 110-081
	18405
Sheet Number:	56

PLOTTED: 6/19/2015 10:19:30 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM.DWG



PLOTTED: 6/19/2015 10:19:46 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_INTERIM.DWG

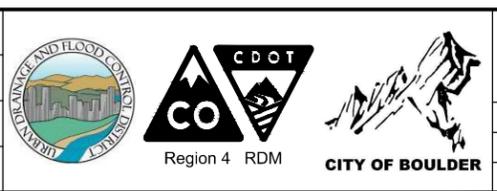
Computer File Information	
Creation Date: 10/09/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_INTERIM.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

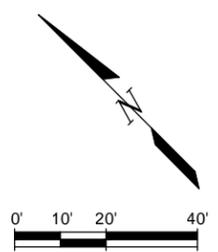
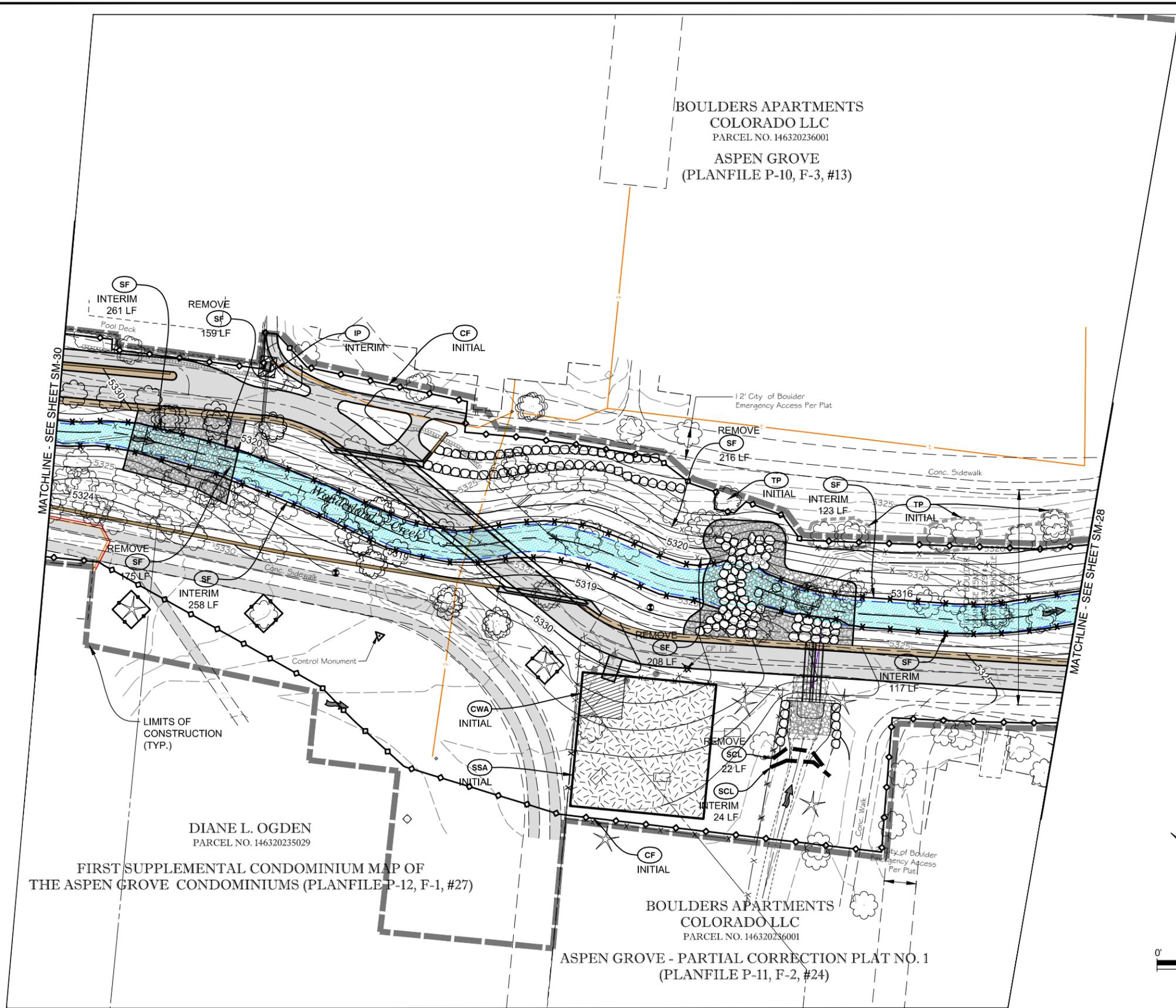
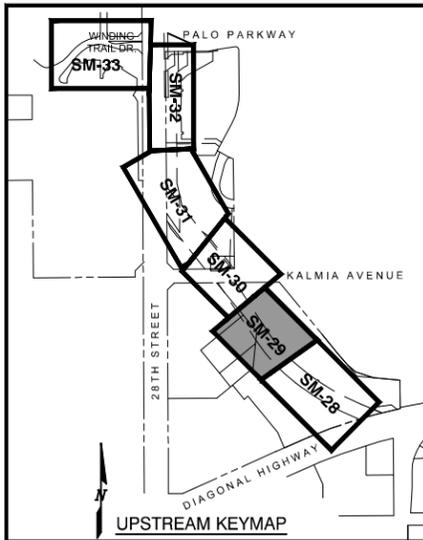
As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		
STORMWATER MANAGEMENT PLAN - INTERIM		
Designer: MKN	Structure Numbers	
Detailer: JHK		
Sheet Subset: SWMP	Subset Sheets: SM-27	

Project No./Code
STM 110-081
18405
Sheet Number: 57





PLOTTED: 6/19/2015 10:20:30 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM NORTH.DWG

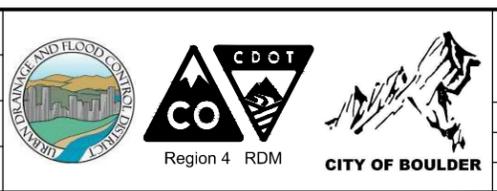
Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



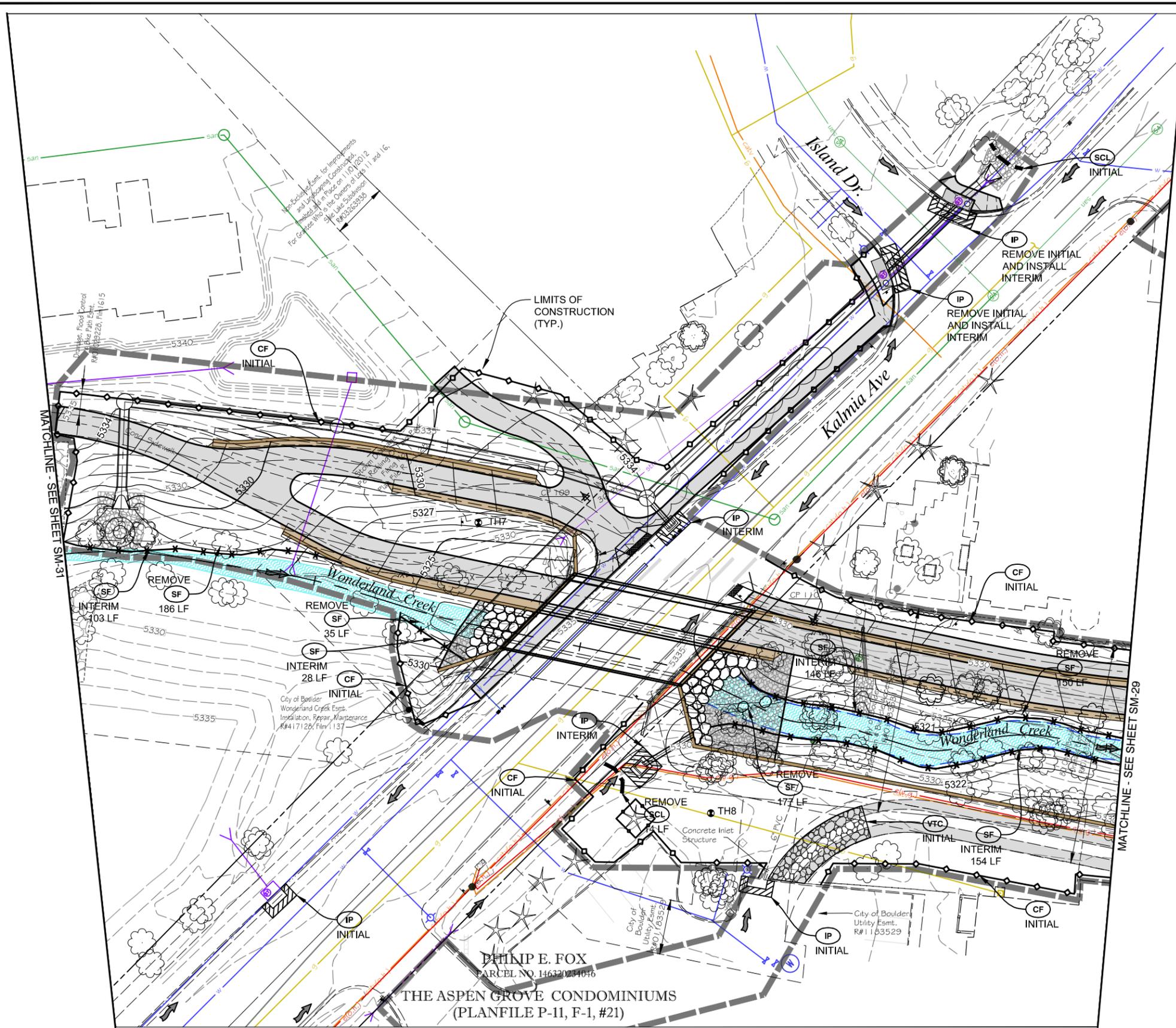
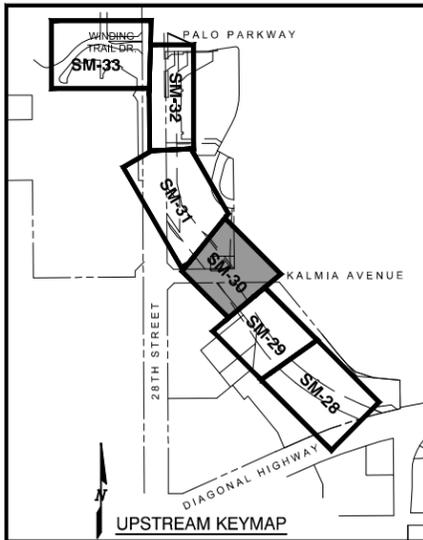
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INTERIM			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-29

Project No./Code
STM 110-081
18405
Sheet Number: 59



PLOTTED: 6/19/2015 10:20:35 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM NORTH.DWG

Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

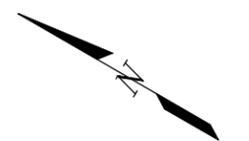
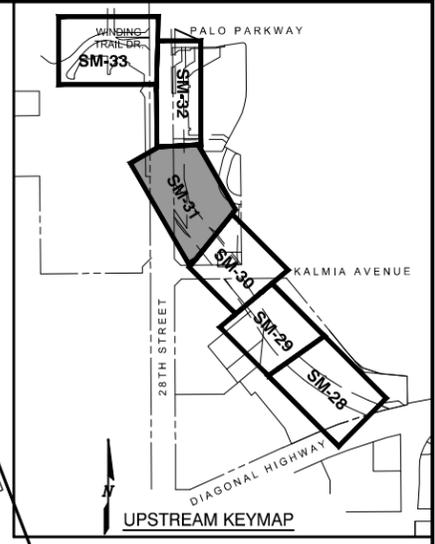
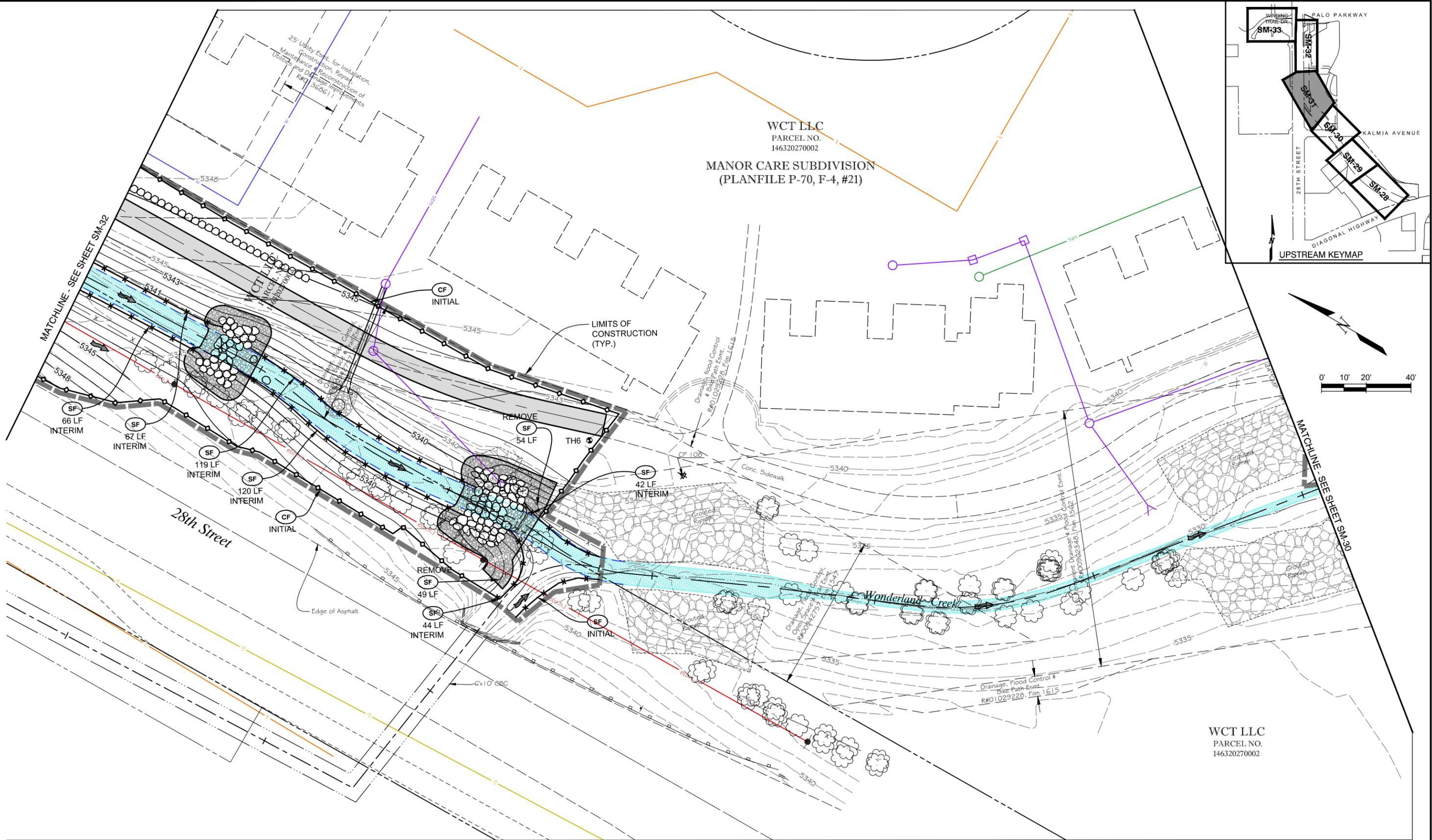
As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM  
**CITY OF BOULDER**

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - INTERIM</b>			
Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	SWMP	Subset Sheets:	SM-30

Project No./Code	STM 110-081
	18405
Sheet Number:	60

PLOTTED: 6/19/2015 10:20:41 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM NORTH.DWG



Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

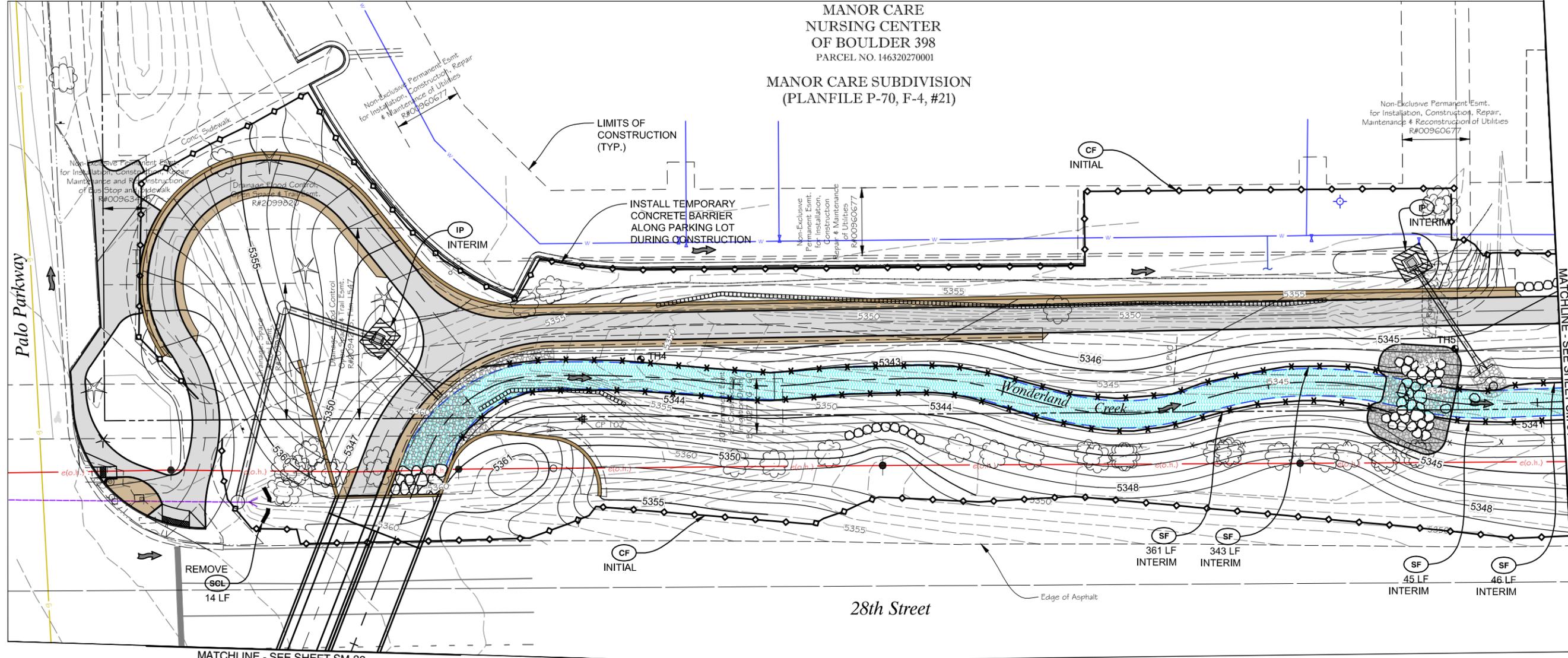
As Constructed
No Revisions:
Revised:
Void:

LARIMER COUNTY AND WELD COUNTY  
 CDOT  
 Region 4 RDM  
 CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - INTERIM</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-31

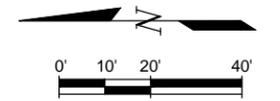
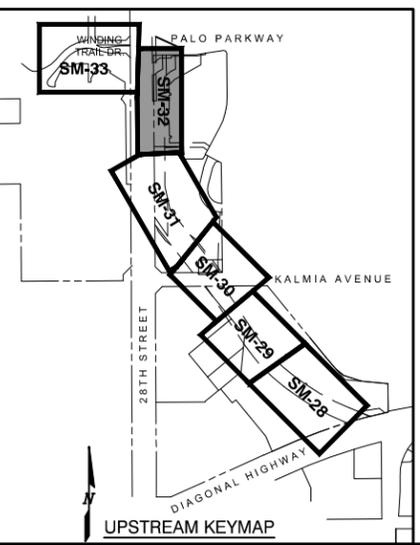
Project No./Code	STM 110-081
	18405
Sheet Number:	61

MANOR CARE  
NURSING CENTER  
OF BOULDER 398  
PARCEL NO. 146320270001  
  
MANOR CARE SUBDIVISION  
(PLANFILE P-70, F-4, #21)



MATCHLINE - SEE SHEET SM-33

MATCHLINE - SEE SHEET SM-31



Computer File Information

Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

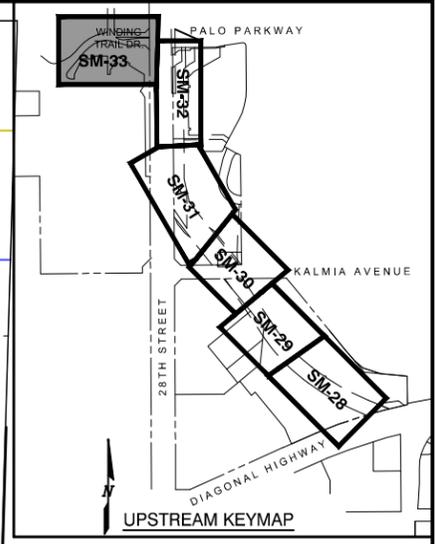
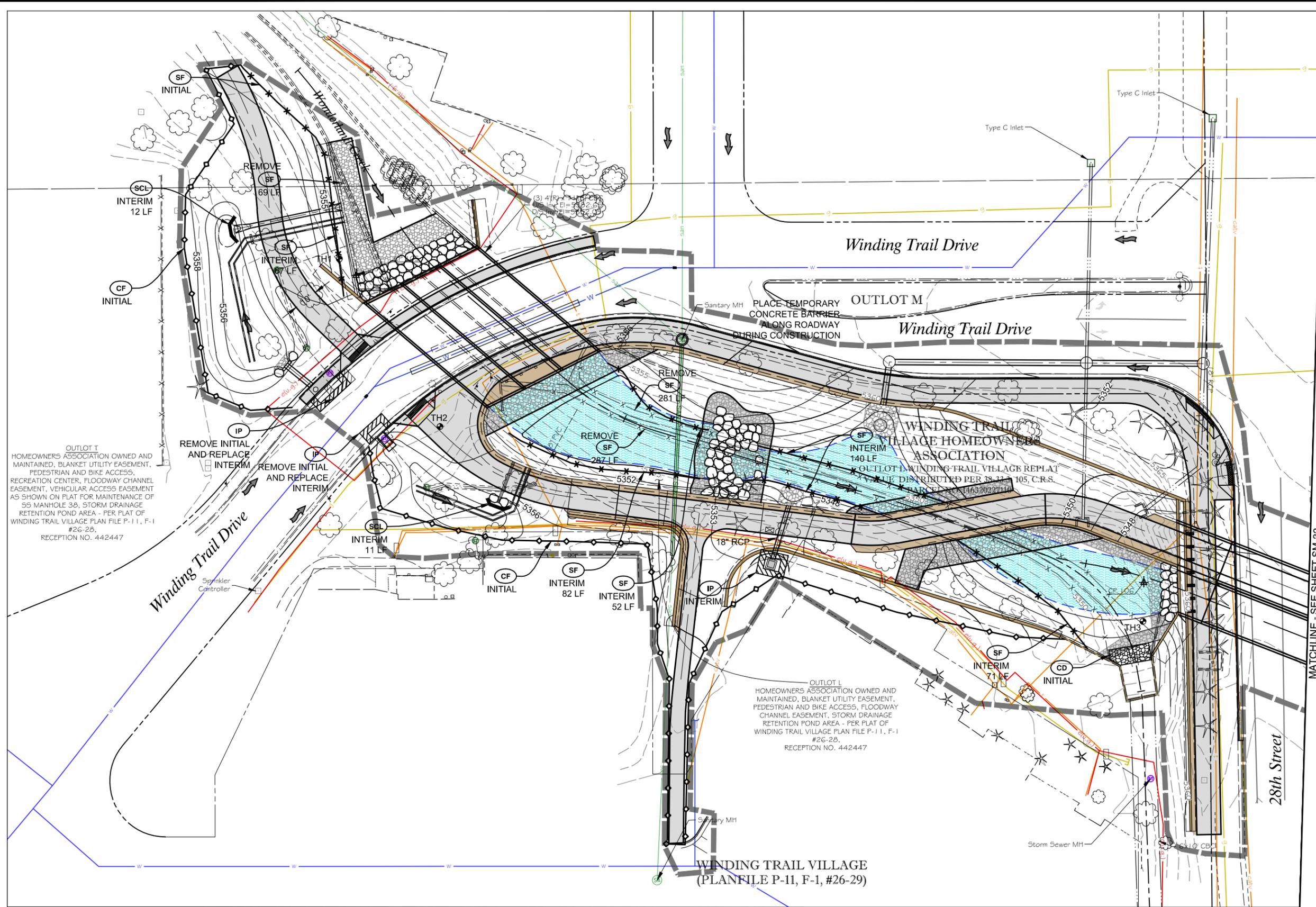
As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - INTERIM			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-32

Project No./Code	STM 110-081
	18405
Sheet Number:	62

PLOTTED: 6/19/2015 10:20:46 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM NORTH.DWG



OUTLOT T  
 HOMEOWNERS ASSOCIATION OWNED AND MAINTAINED, BLANKET UTILITY EASEMENT, PEDESTRIAN AND BIKE ACCESS, RECREATION CENTER, FLOODWAY CHANNEL EASEMENT, VEHICULAR ACCESS EASEMENT AS SHOWN ON PLAT FOR MAINTENANCE OF 59 MANHOLE 36, STORM DRAINAGE RETENTION POND AREA - PER PLAT OF WINDING TRAIL VILLAGE PLAN FILE P-11, F-1 #26-28, RECEPTION NO. 442447

OUTLOT L  
 HOMEOWNERS ASSOCIATION OWNED AND MAINTAINED, BLANKET UTILITY EASEMENT, PEDESTRIAN AND BIKE ACCESS, FLOODWAY CHANNEL EASEMENT, STORM DRAINAGE RETENTION POND AREA - PER PLAT OF WINDING TRAIL VILLAGE PLAN FILE P-11, F-1 #26-28, RECEPTION NO. 442447

**WINDING TRAIL VILLAGE**  
 (PLANFILE P-11, F-1, #26-29)

MATCHLINE - SEE SHEET SM-32

PLOTTED: 6/19/2015 10:20:52 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP INTERIM NORTH.DWG

Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP INTERIM NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

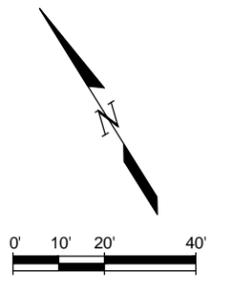
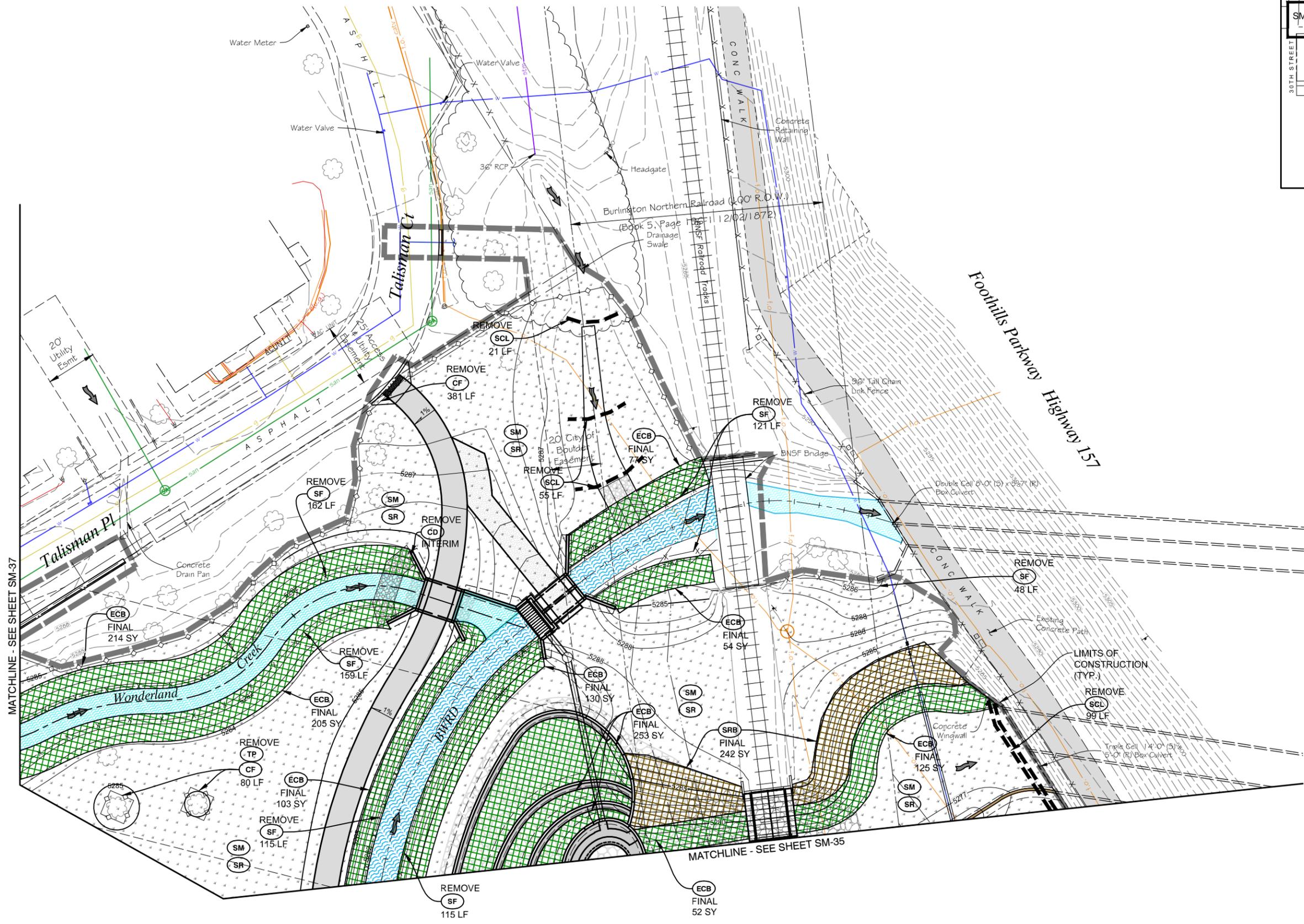
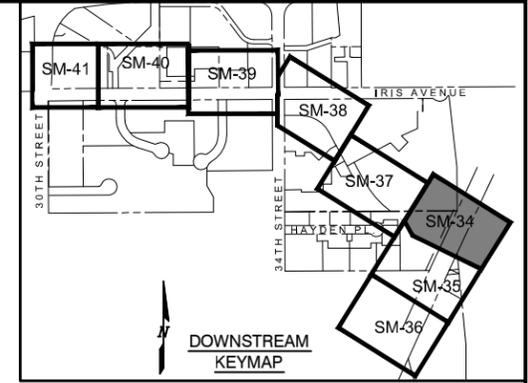
**As Constructed**

No Revisions:  
 Revised:  
 Void:



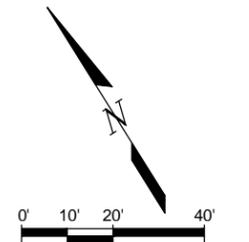
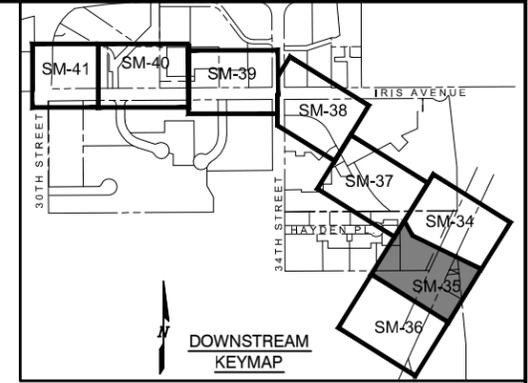
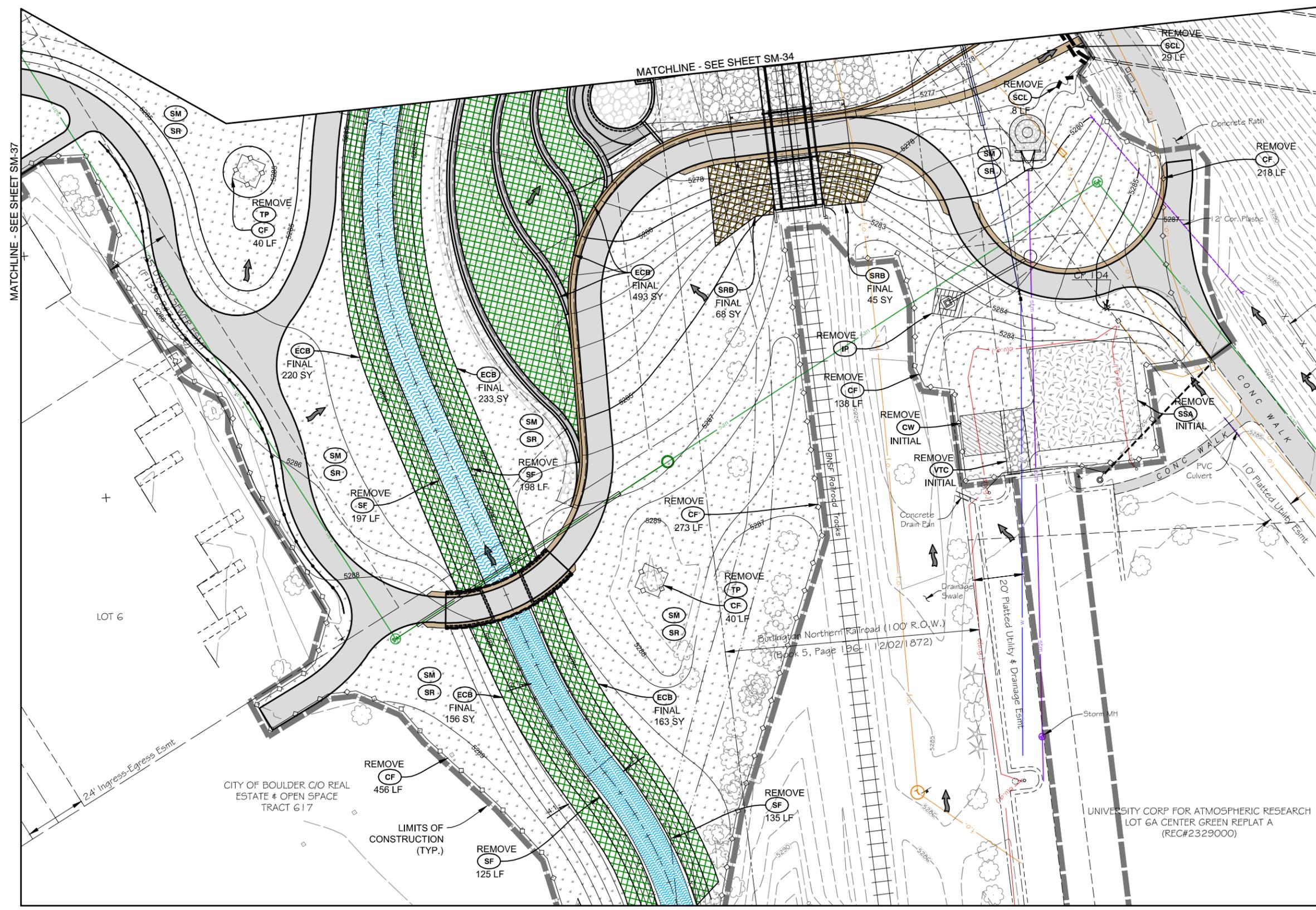
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - INTERIM</b>			
Designer:	MKN	Structure	Numbers
Detailer:	JHK		
Sheet Subset:	SWMP	Subset Sheets:	SM-33

Project No./Code	STM 110-081
	18405
Sheet Number:	63



PLOTTED: 6/19/2015 10:22:00 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL.DWG

<b>Computer File Information</b> Creation Date: 10/22/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP_FINAL.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: Comments Init.		<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - FINAL</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: SWMP Subset Sheets: SM-34			Project No./Code <b>STM 110-081</b> 18405 Sheet Number: <b>64</b>	
---	--	---	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--



PLOTTED: 6/19/2015 10:22:17 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL.DWG

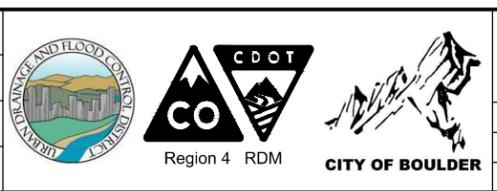
Computer File Information	
Creation Date: 10/22/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_FINAL.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
 MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

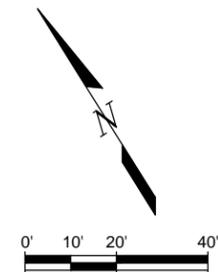
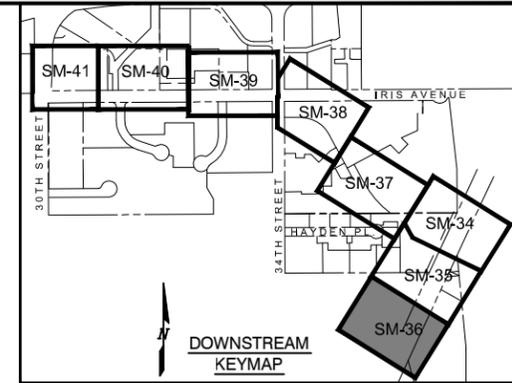
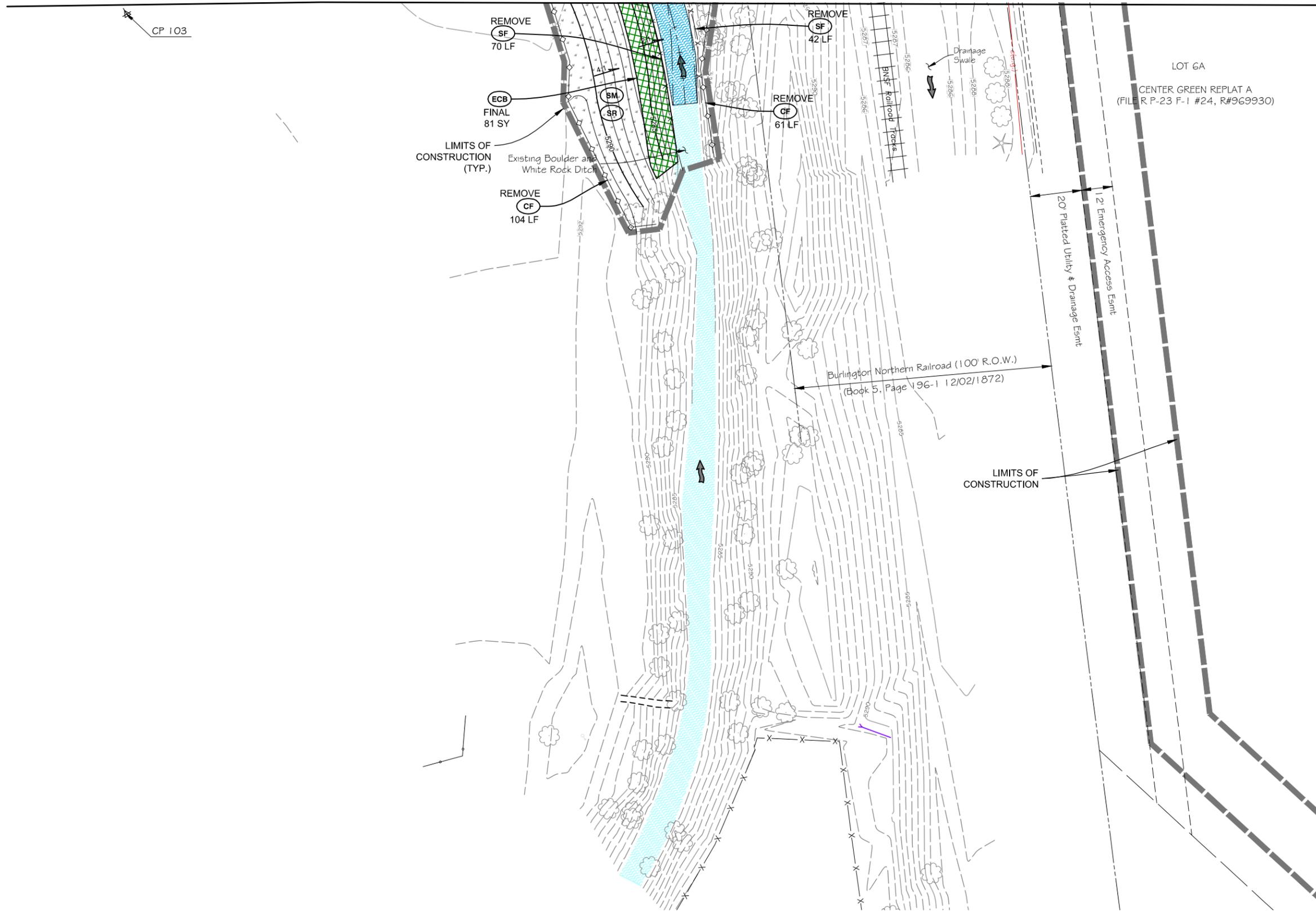
As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - FINAL			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-35

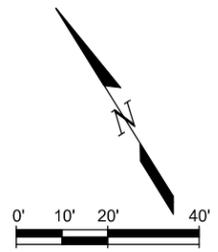
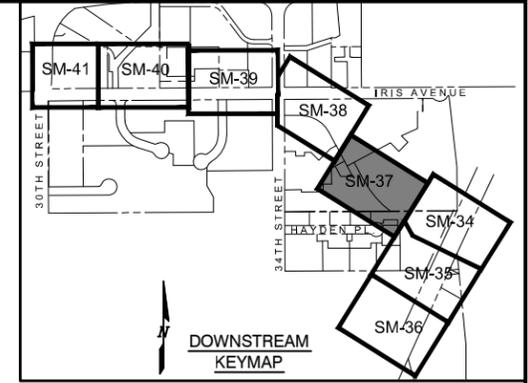
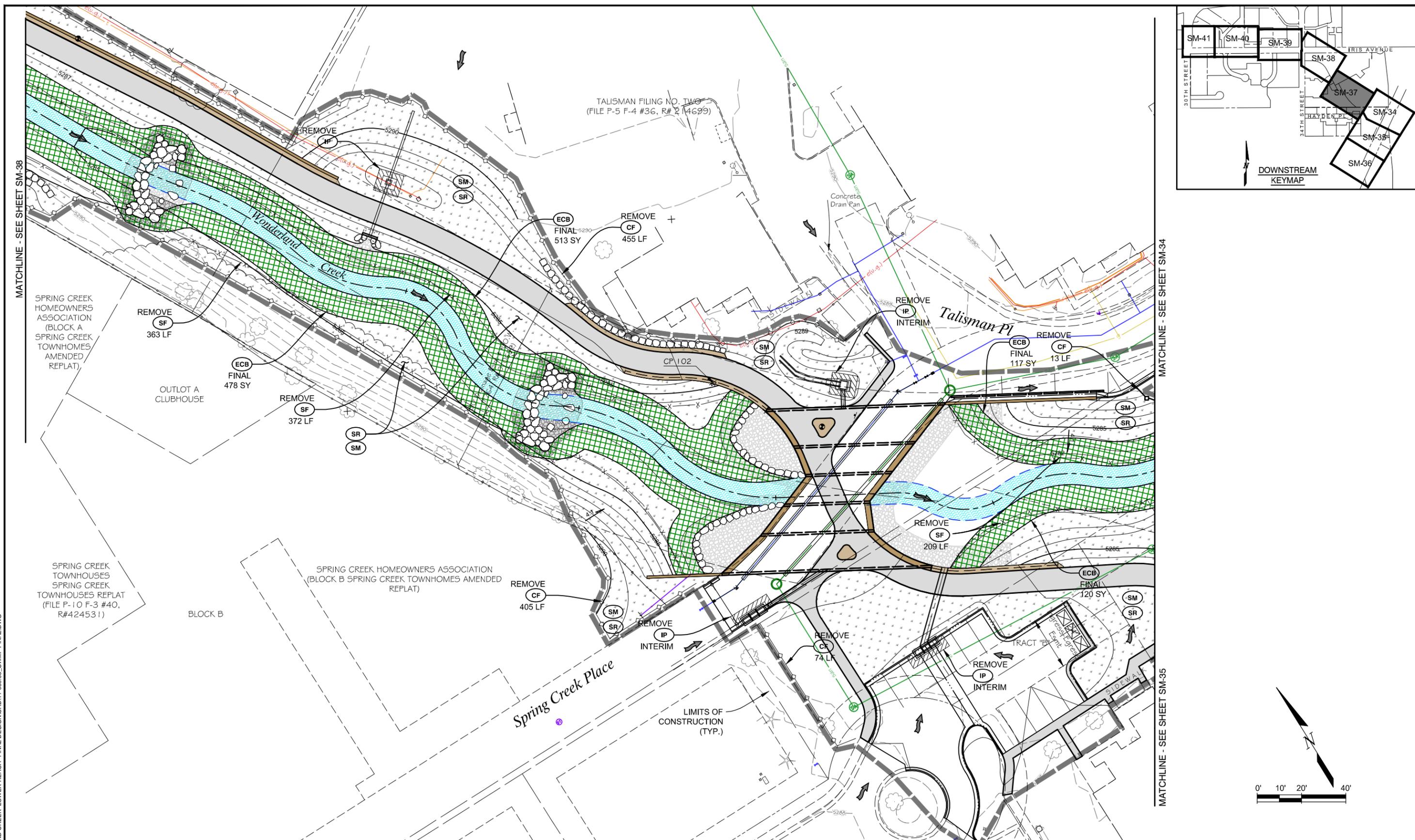
Project No./Code
STM 110-081
18405
Sheet Number: 65

MATCHLINE - SEE SHEET SM-35



PLOTTED: 6/19/2015 10:22:32 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL.DWG

<b>Computer File Information</b> Creation Date: 10/22/14      Initials: JHK Last Modification Date: 06/18/15      Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP_FINAL.dwg AutoCAD 2014      Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>			Date:	Comments	Init.													<b>As Constructed</b> No Revisions: Revised: Void:				WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - FINAL</b> Designer: MKN      Structure Numbers Detailer: JHK Sheet Subset: SWMP      Subset Sheets: SM-36			Project No./Code STM 110-081 18405 Sheet Number: 66	
Date:	Comments	Init.																														



PLOTTED: 6/19/2015 10:22:48 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL.DWG

<b>Computer File Information</b> Creation Date: 10/22/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP_FINAL.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date:	Comments	Init.													<b>As Constructed</b> No Revisions: Revised: Void:				WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - FINAL</b> Designer: MKN Structure Numbers Detailer: JHK Numbers Sheet Subset: SWMP Subset Sheets: SM-37		Project No./Code <b>STM 110-081</b> 18405 Sheet Number: <b>67</b>	
Date:	Comments	Init.																												

LOT 5 BOULDER HEALTH PROFESSIONS CONDOMINIUMS (PLANFILE P-9, F-1, #2 & 3)

LOT 4 BOULDER HEALTH PROFESSIONS CONDOMINIUMS (PLANFILE P-9, F-1, #2 & 3)

BOULDERS HOMEOWNERS ASSOCIATION TALISMAN FILING NO. ONE (PLANFILE P-4, F-3, #15) COMMON AREA

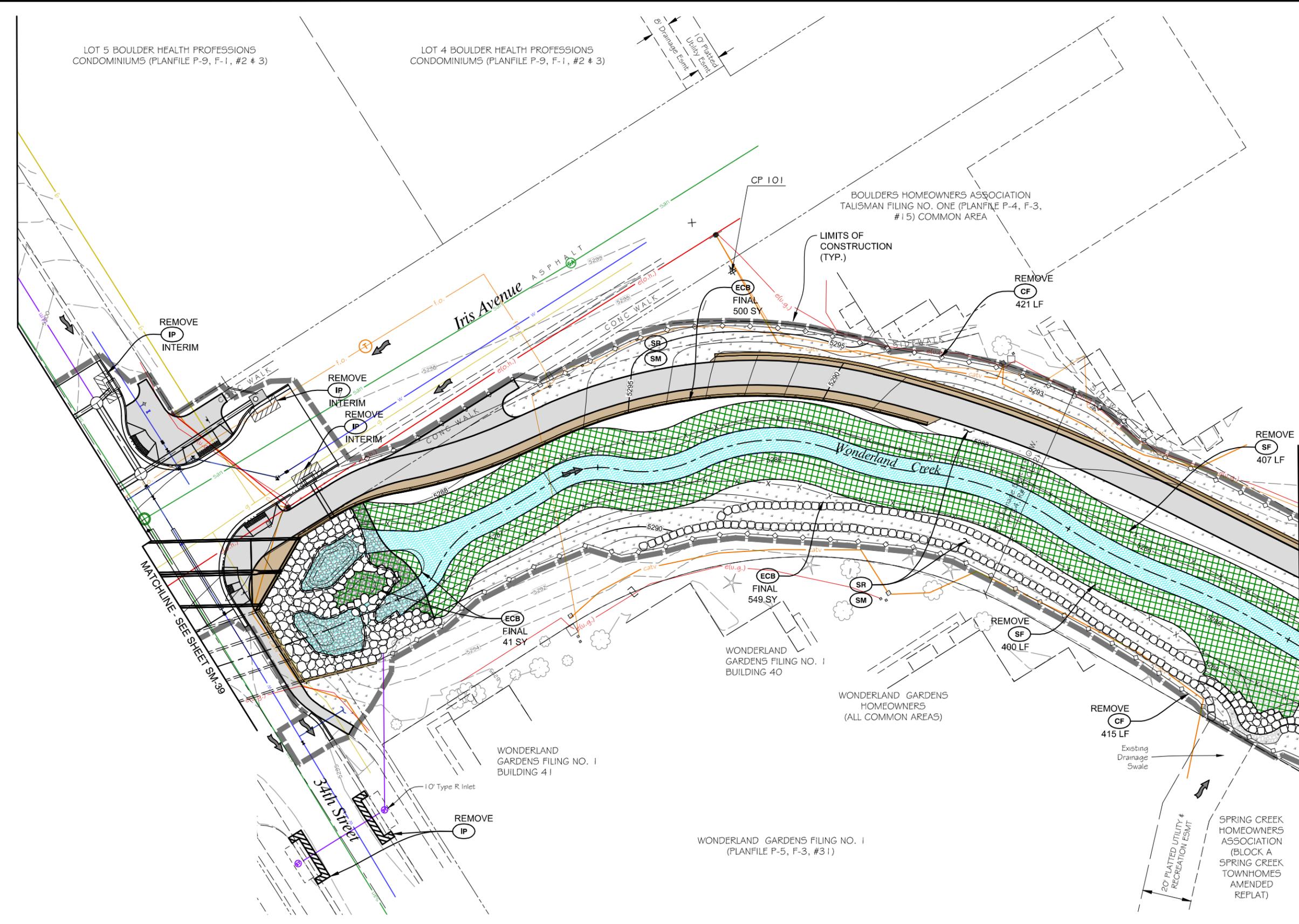
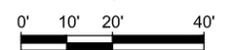
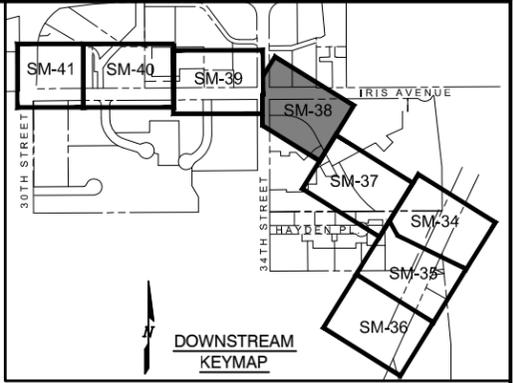
WONDERLAND GARDENS FILING NO. 1 BUILDING 40

WONDERLAND GARDENS HOMEOWNERS (ALL COMMON AREAS)

WONDERLAND GARDENS FILING NO. 1 BUILDING 41

WONDERLAND GARDENS FILING NO. 1 (PLANFILE P-5, F-3, #31)

SPRING CREEK HOMEOWNERS ASSOCIATION (BLOCK A SPRING CREEK TOWNHOMES AMENDED REPLAT)



PLOTTED: 6/19/2015 10:23:05 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL.DWG

Computer File Information	
Creation Date: 10/22/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_FINAL.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

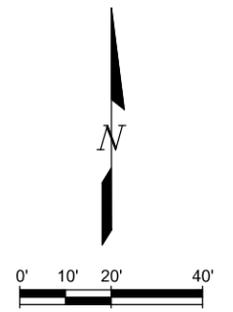
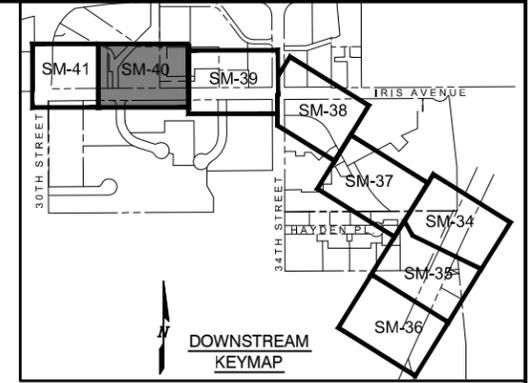
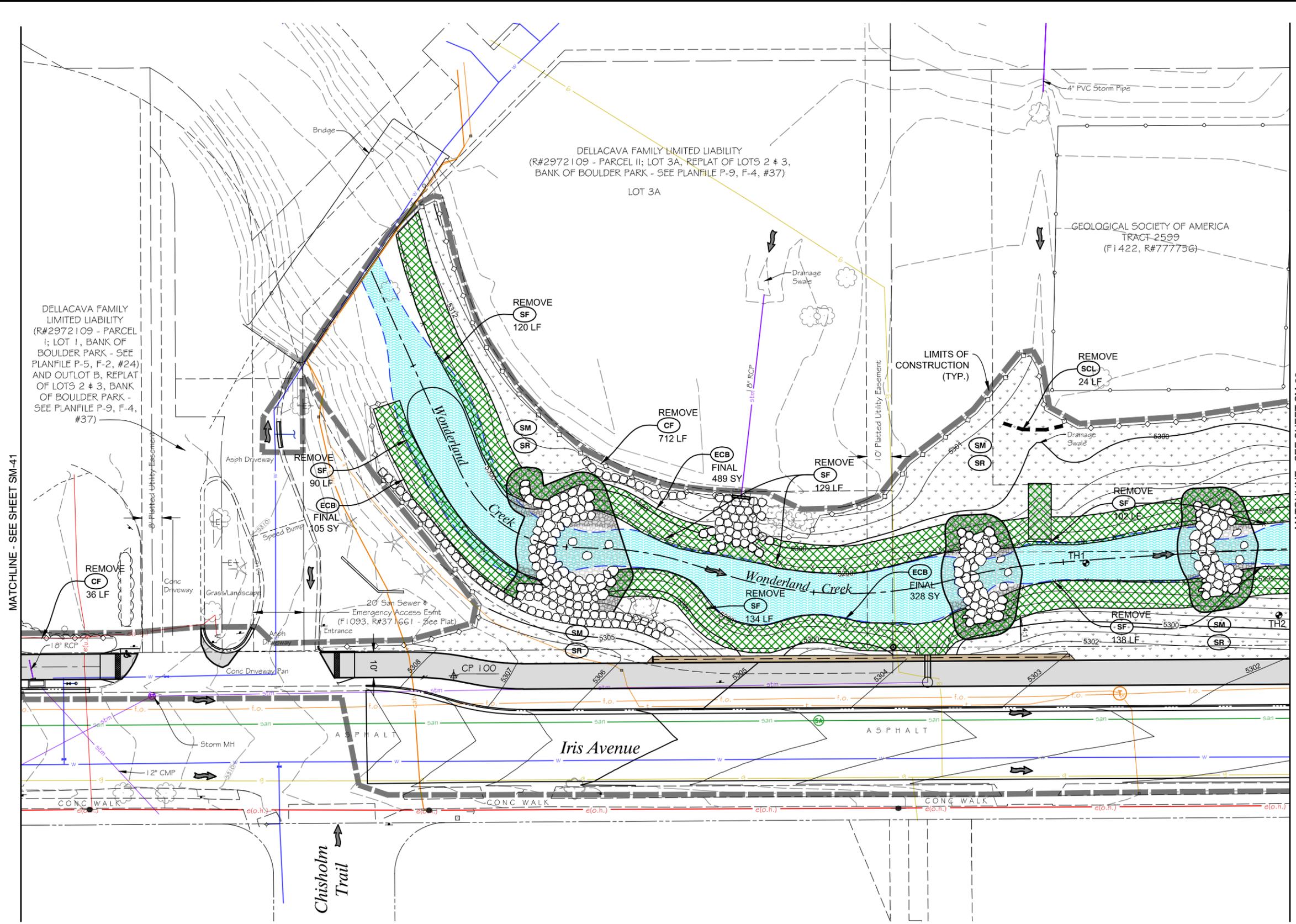


WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - FINAL			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-38

Project No./Code	STM 110-081
	18405
Sheet Number:	68



PLOTTED: 6/19/2015 10:23:37 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL.DWG



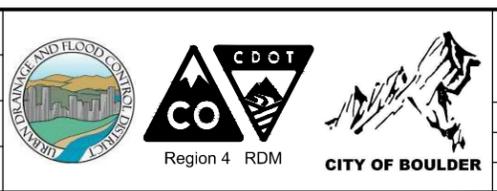
Computer File Information	
Creation Date: 10/22/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_FINAL.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



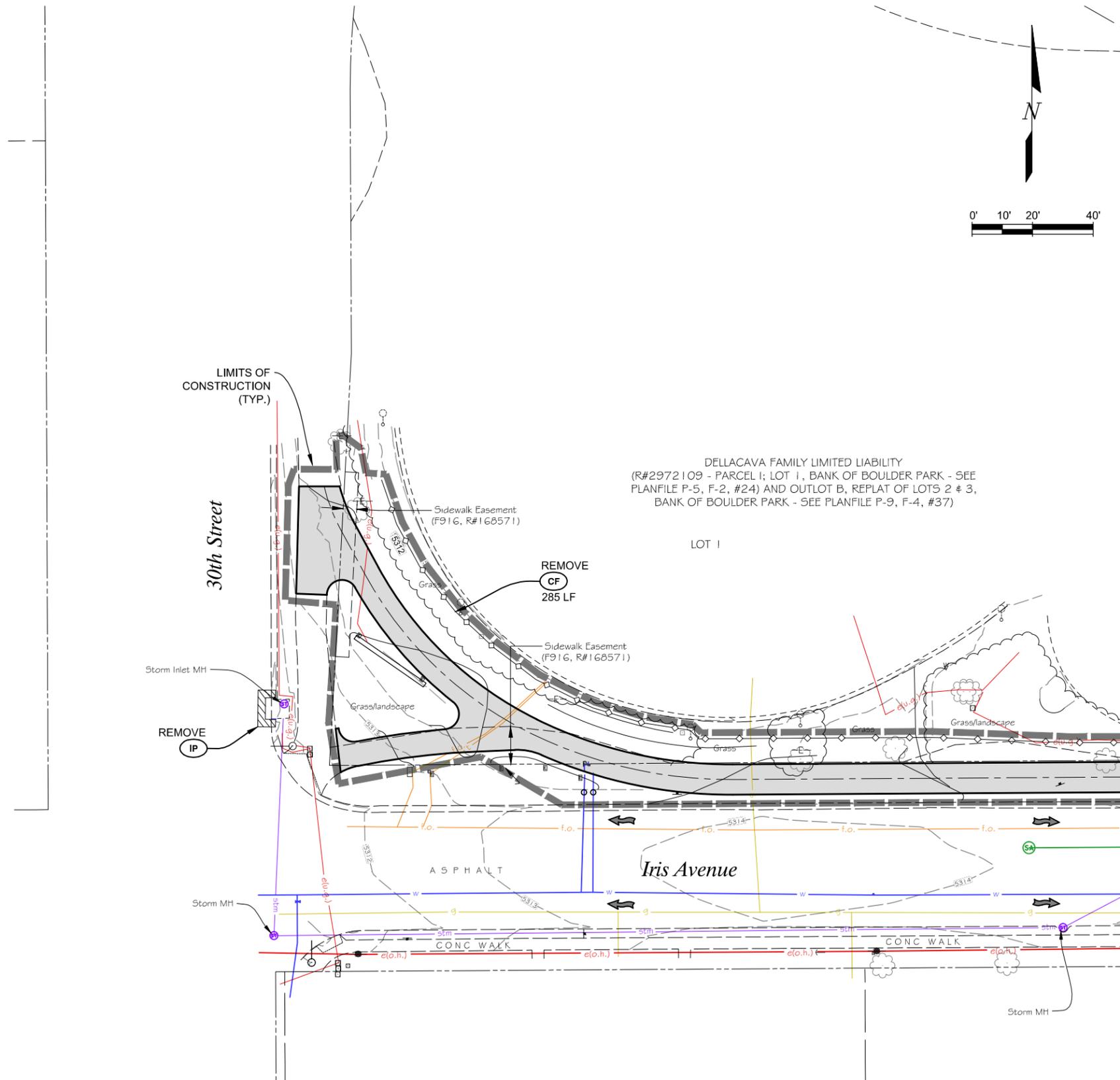
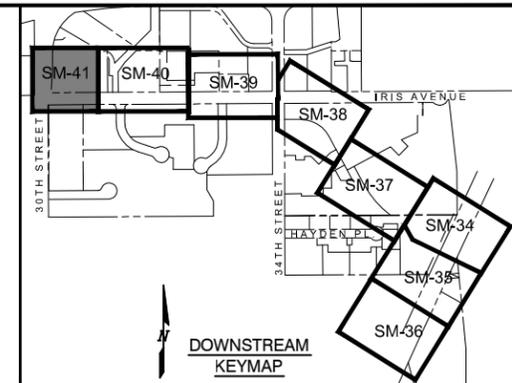
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - FINAL</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-40

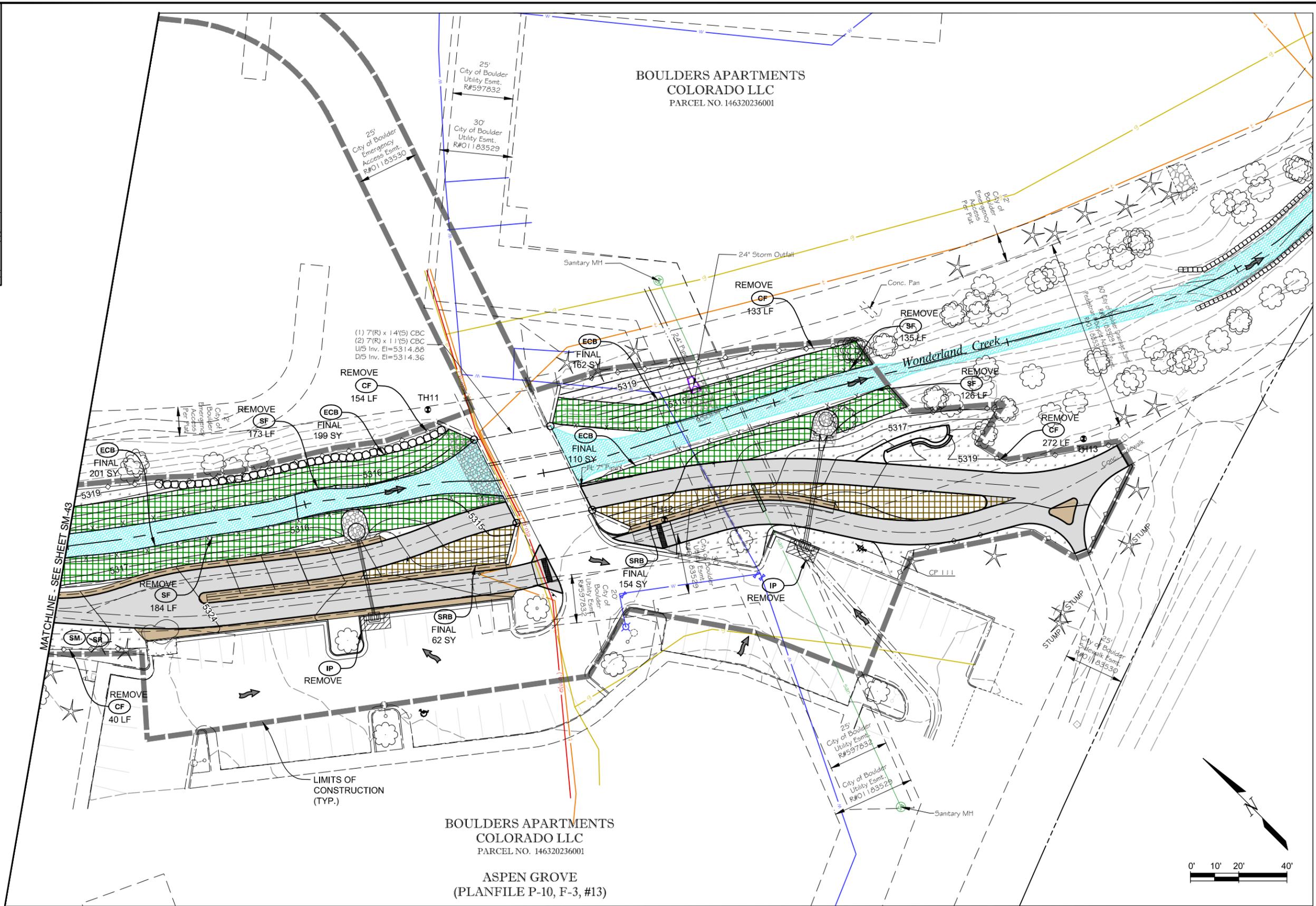
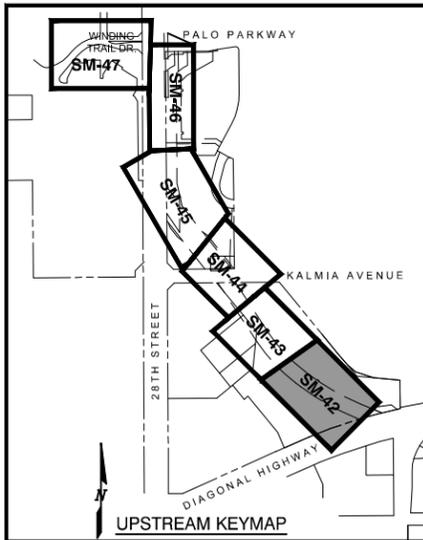
Project No./Code	STM 110-081
	18405
Sheet Number:	70



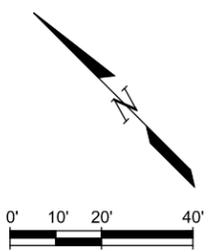
MATCHLINE - SEE SHEET SM-40

PLOTTED: 6/19/2015 10:24:02 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL.DWG

<b>Computer File Information</b> Creation Date: 10/22/14 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP_FINAL.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date:      Comments      Init.			<b>As Constructed</b> No Revisions: Revised: Void:						WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - FINAL</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: SWMP Subset Sheets: SM-41			Project No./Code <b>STM 110-081</b> <b>18405</b> Sheet Number: <b>71</b>	
---	--	---	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	---	--



BOULDERS APARTMENTS  
 COLORADO LLC  
 PARCEL NO. 146320236001  
 ASPEN GROVE  
 (PLANFILE P-10, F-3, #13)



PLOTTED: 6/19/2015 10:24:40 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL\_NORTH.DWG

Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_FINAL_NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

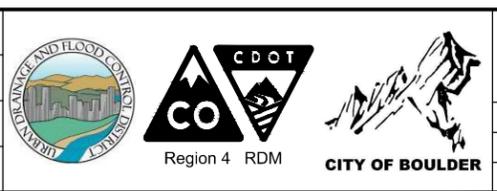
**MULLER**

MEC PROJECT NO. 11039.03



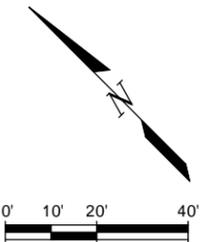
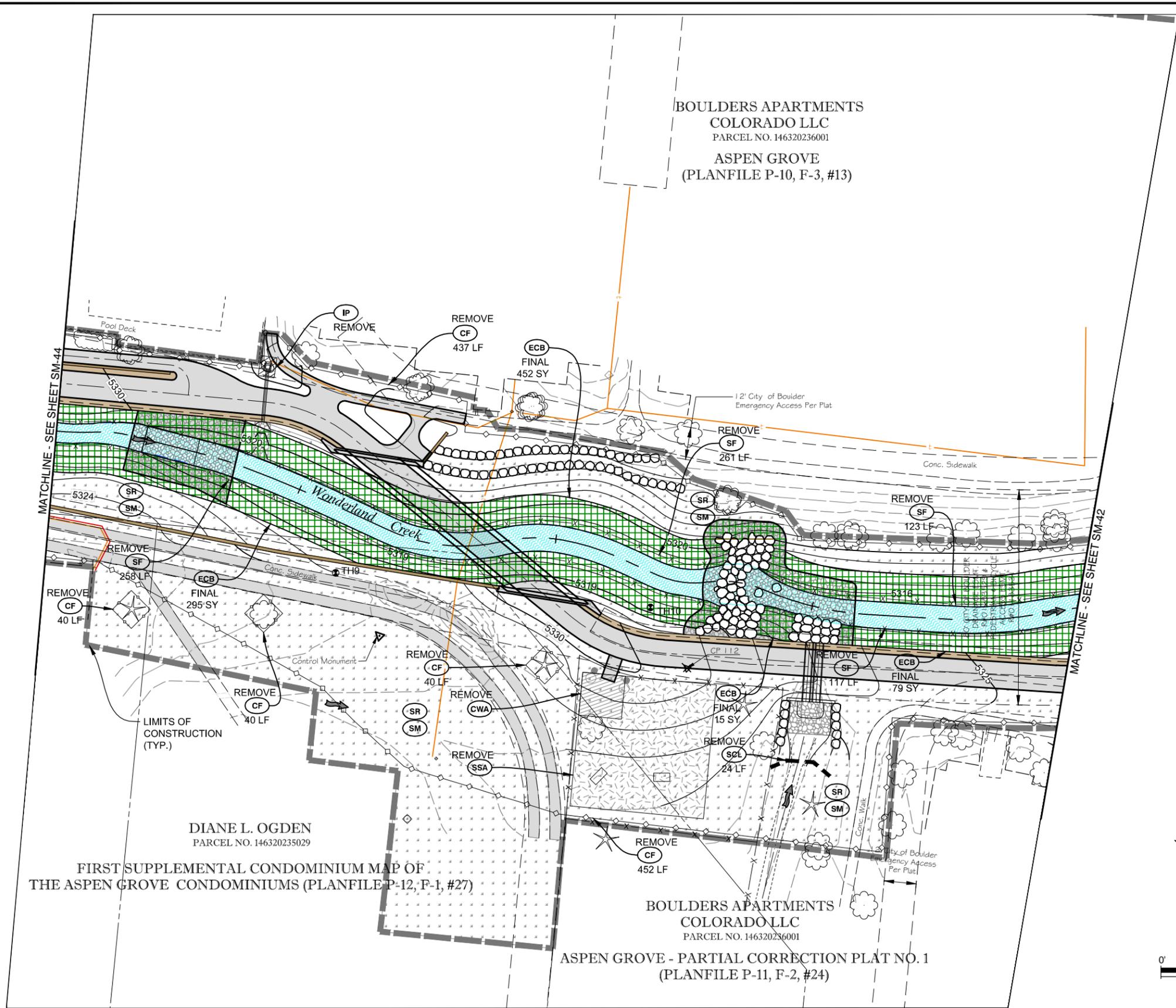
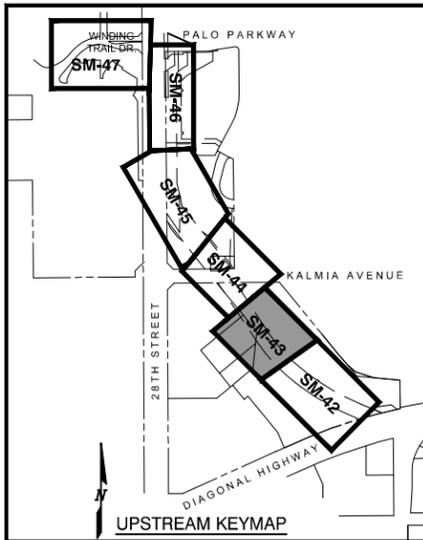
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - FINAL			
Designer:	MKN	Structure	Numbers
Detailer:	JHK	Structure	Numbers
Sheet Subset:	SWMP	Subset Sheets:	SM-42

Project No./Code
STM 110-081
18405
Sheet Number: 72



PLOTTED: 6/19/2015 10:24:45 AM  
 NAME: P:\11-039.03\_FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL\_NORTH.DWG

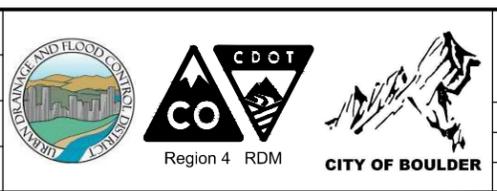
Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_FINAL_NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



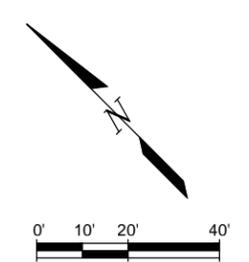
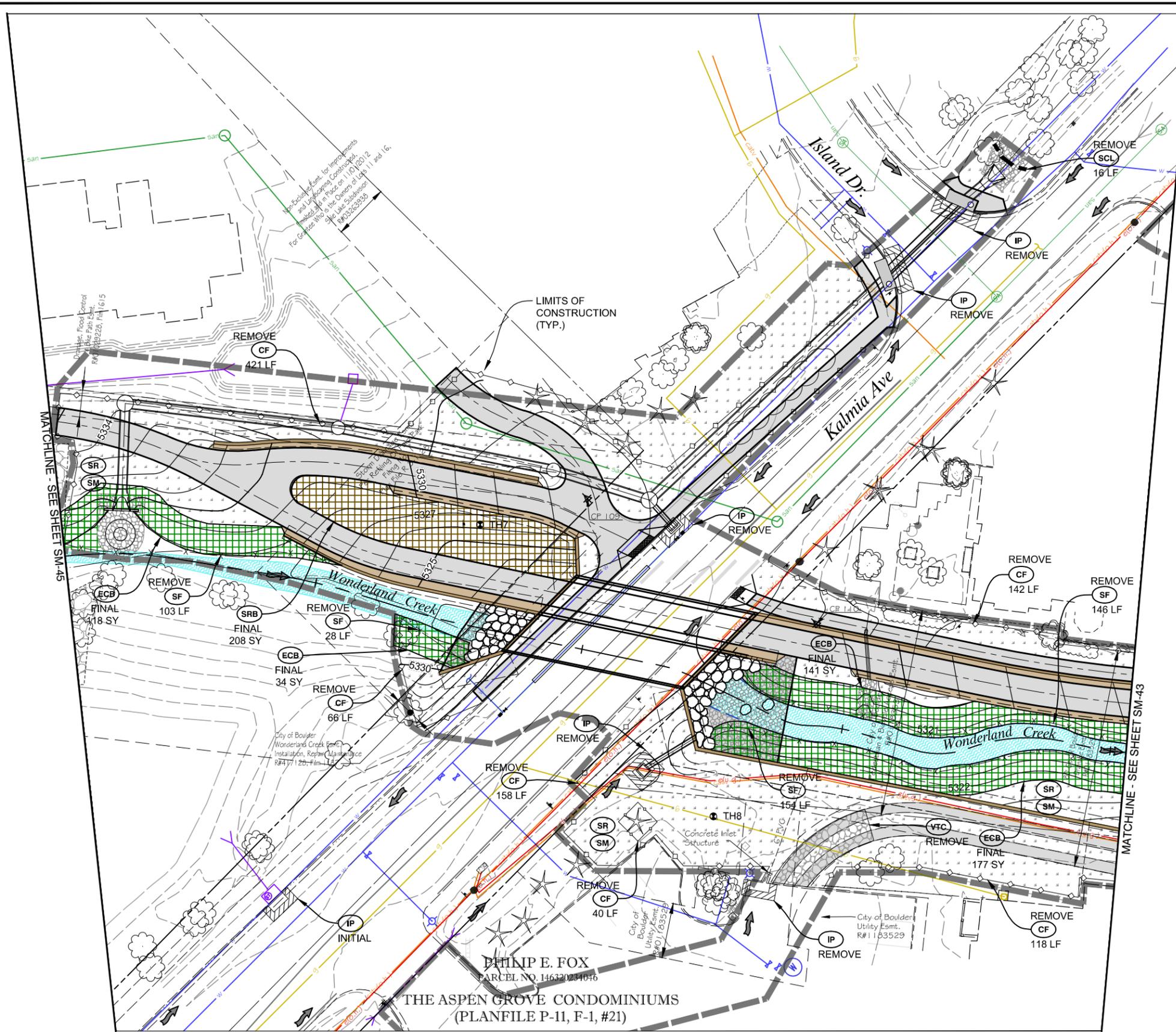
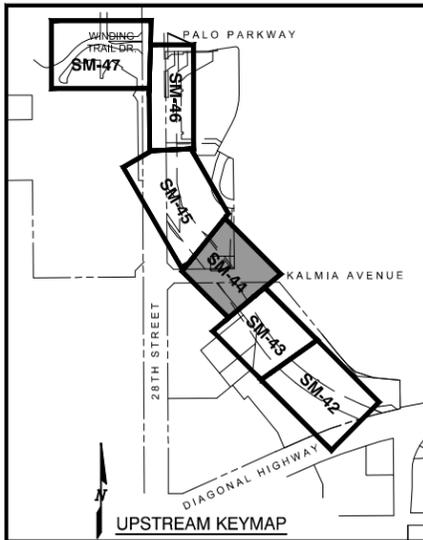
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - FINAL			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-43

Project No./Code	STM 110-081
	18405
Sheet Number:	73



PLOTTED: 6/19/2015 10:24:50 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL\_NORTH.DWG

Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_FINAL_NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
 MEC PROJECT NO. 11039.03



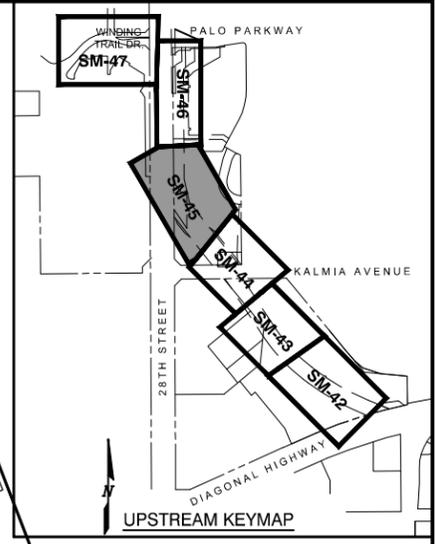
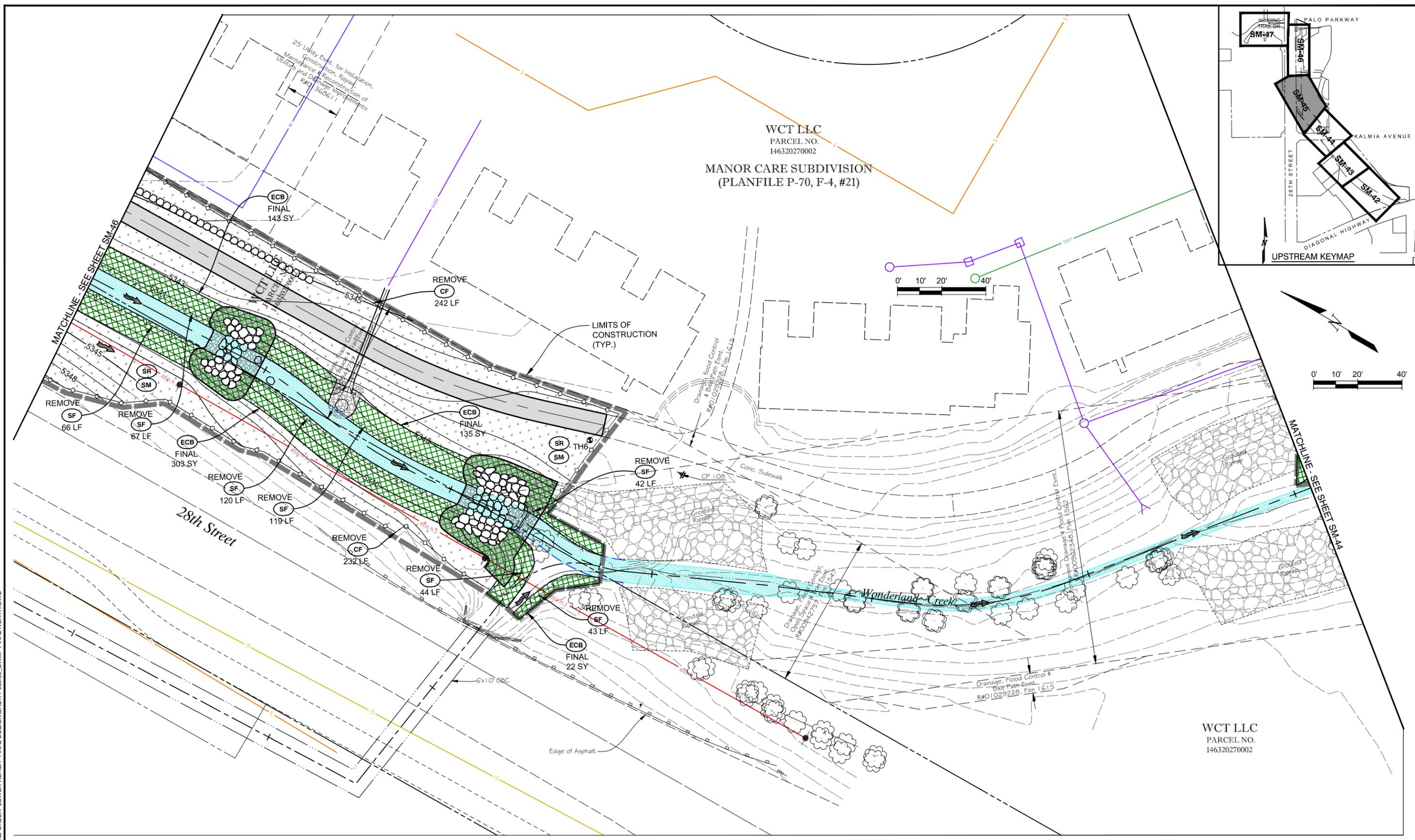
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Region 4 RDM

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - FINAL			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-44

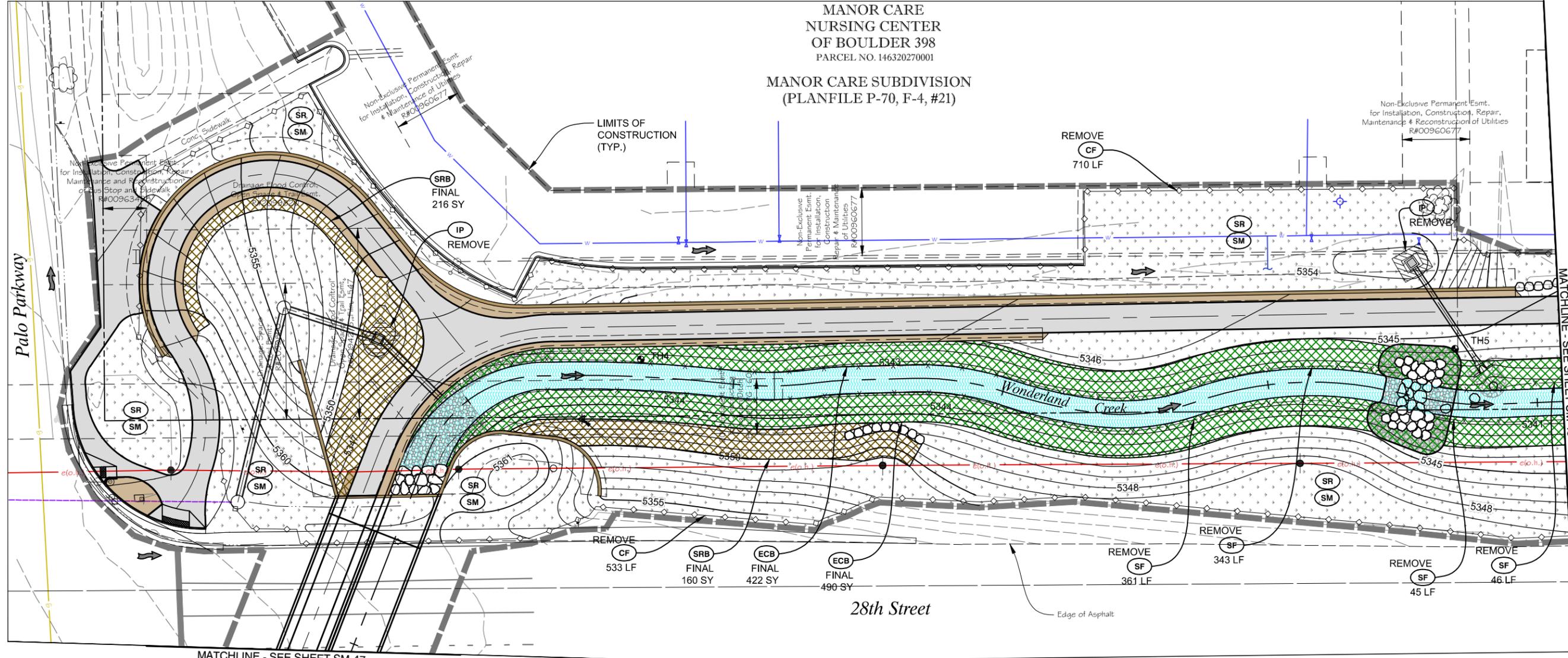
Project No./Code	STM 110-081
	18405
Sheet Number:	74



PLOTTED: 6/19/2015 10:24:55 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL\_NORTH.DWG

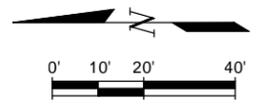
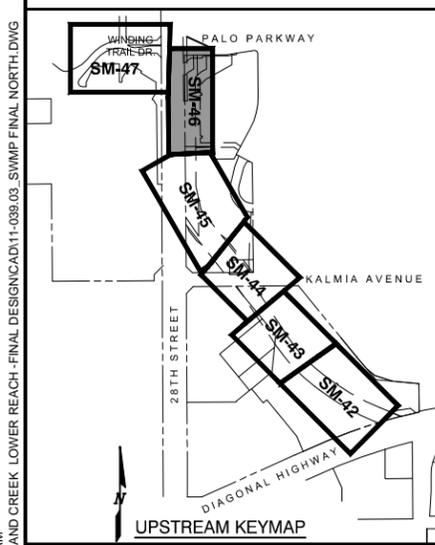
<b>Computer File Information</b> Creation Date: 03/13/15 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_SWMP_FINAL_NORTH.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> <table border="1"> <thead> <tr> <th>Date:</th> <th>Comments</th> <th>Init.</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date:	Comments	Init.													<b>As Constructed</b> No Revisions: Revised: Void:				WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>STORMWATER MANAGEMENT PLAN - FINAL</b> Designer: MKN Structure Numbers Detailer: JHK Sheet Subset: SWMP Subset Sheets: SM-45		Project No./Code <b>STM 110-081</b> 18405 Sheet Number: 75	
Date:	Comments	Init.																												

MANOR CARE  
NURSING CENTER  
OF BOULDER 398  
PARCEL NO. 146320270001  
MANOR CARE SUBDIVISION  
(PLANFILE P-70, F-4, #21)



MATCHLINE - SEE SHEET SM-47

MATCHLINE - SEE SHEET SM-45



PLOTTED: 6/19/2015 10:25:00 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP\_FINAL\_NORTH.DWG

Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP_FINAL_NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



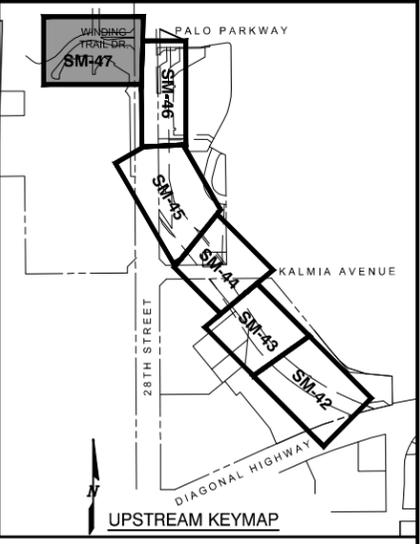
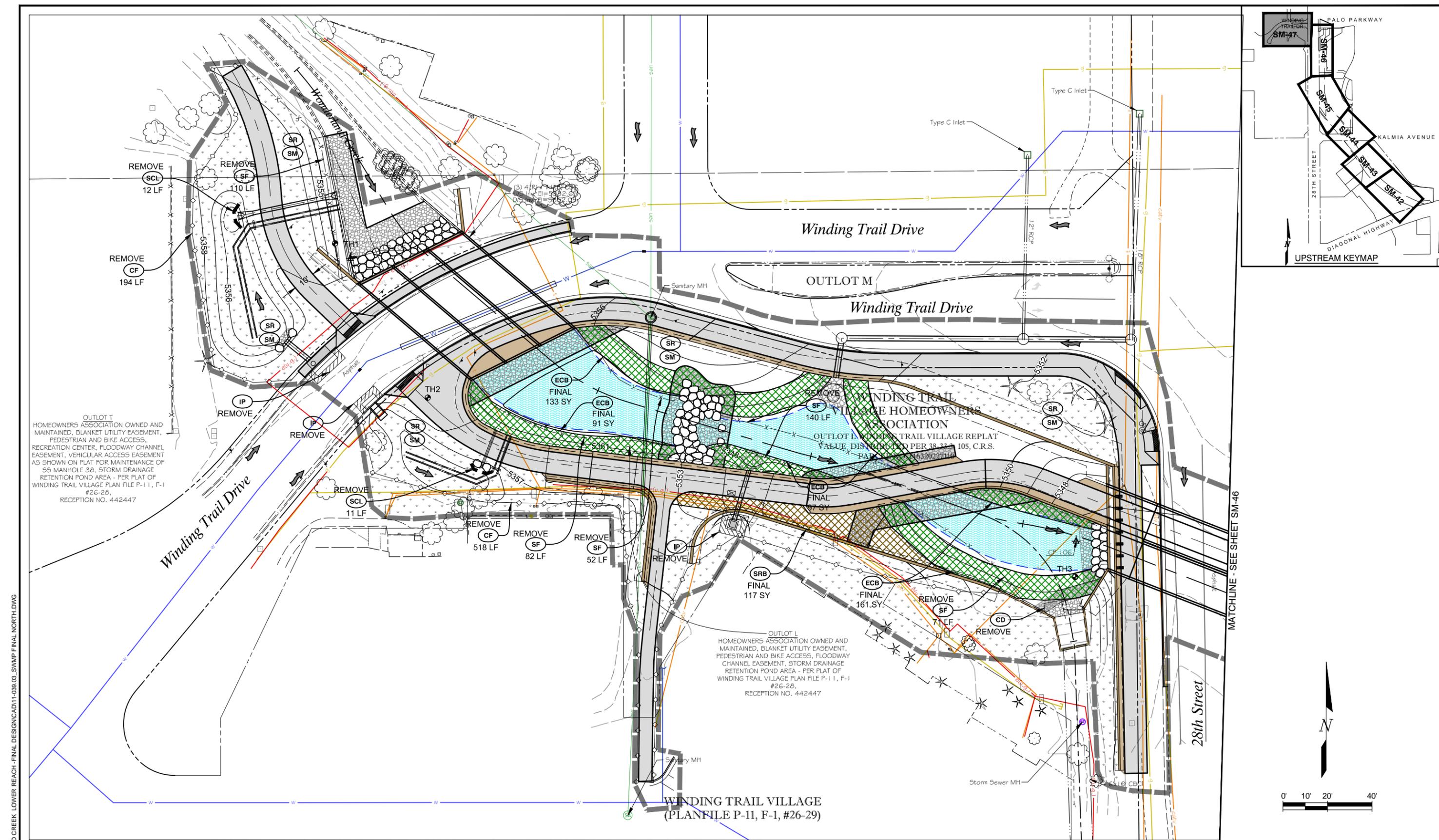
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

Logos for Larimer and Weld Counties, Colorado Department of Transportation (CDOT), and City of Boulder. Text includes 'Region 4 RDM' and 'CITY OF BOULDER'.

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
STORMWATER MANAGEMENT PLAN - FINAL			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-46

Project No./Code	STM 110-081
	18405
Sheet Number:	76

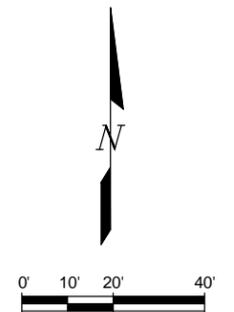


OUTLOT T  
 HOMEOWNERS ASSOCIATION OWNED AND MAINTAINED, BLANKET UTILITY EASEMENT, PEDESTRIAN AND BIKE ACCESS, RECREATION CENTER, FLOODWAY CHANNEL EASEMENT, VEHICULAR ACCESS EASEMENT AS SHOWN ON PLAT FOR MAINTENANCE OF 59 MANHOLE 36, STORM DRAINAGE RETENTION POND AREA - PER PLAT OF WINDING TRAIL VILLAGE PLAN FILE P-11, F-1 #26-28, RECEPTION NO. 442447

OUTLOT L  
 HOMEOWNERS ASSOCIATION OWNED AND MAINTAINED, BLANKET UTILITY EASEMENT, PEDESTRIAN AND BIKE ACCESS, FLOODWAY CHANNEL EASEMENT, STORM DRAINAGE RETENTION POND AREA - PER PLAT OF WINDING TRAIL VILLAGE PLAN FILE P-11, F-1 #26-28, RECEPTION NO. 442447

**WINDING TRAIL VILLAGE**  
 (PLANFILE P-11, F-1, #26-29)

MATCHLINE - SEE SHEET SM-46



Computer File Information	
Creation Date: 03/13/15	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP FINAL NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

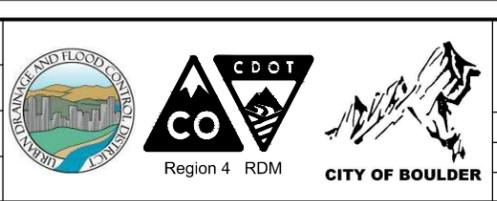
MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

**As Constructed**

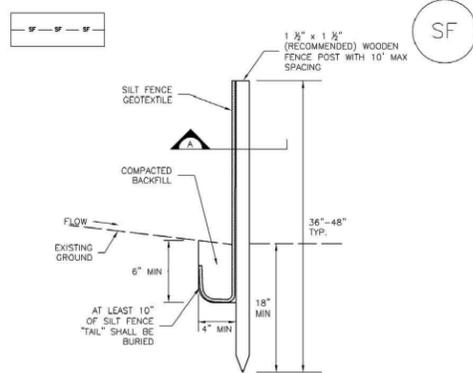
No Revisions:  
 Revised:  
 Void:



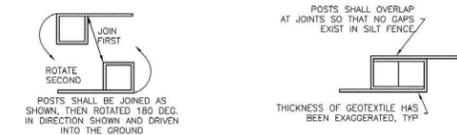
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>STORMWATER MANAGEMENT PLAN - FINAL</b>			
Designer:	MKN	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	SWMP	Subset Sheets:	SM-47

Project No./Code	
STM 110-081	
18405	
Sheet Number:	77

PLOTTED: 6/19/2015 10:25:05 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP FINAL NORTH.DWG



SILT FENCE



SECTION A

SF-1. SILT FENCE

SILT FENCE INSTALLATION NOTES

- 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.
- 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.
- 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.
- 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.
- 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.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "U-HOOK." THE "U-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

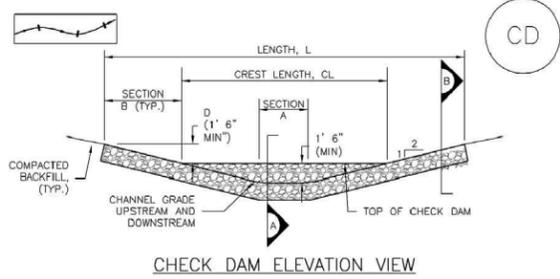
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- 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".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- 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.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

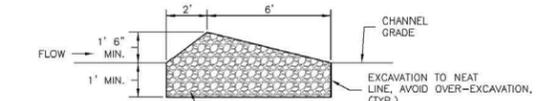
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SF

SILT FENCE



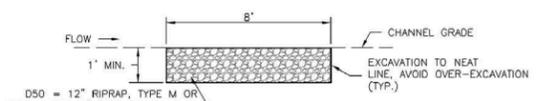
CHECK DAM ELEVATION VIEW



SECTION A



SECTION B



CD-1. CHECK DAM

CHECK DAM INSTALLATION NOTES

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

CHECK DAM MAINTENANCE NOTES

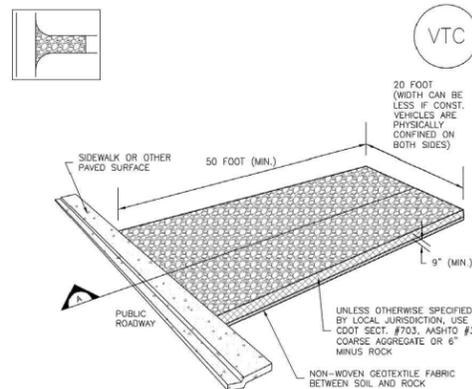
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
- CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL. DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

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

CD

CHECK DAM



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

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

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

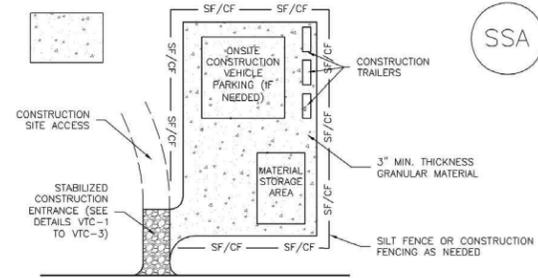
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

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

VTC

VEHICLE TRACKING CONTROL



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

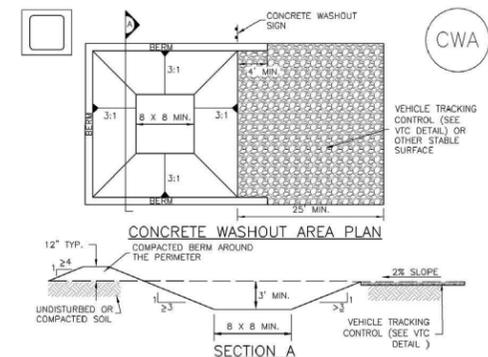
- SEE PLAN VIEW FOR:
  - LOCATION OF STAGING AREA(S).
  - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
- STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
- STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
- THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

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

SSA

STABILIZED STAGING AREA



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

- SEE PLAN VIEW FOR:
  - CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFESIBLE, OR IF HIGHLY FERTILIZABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (15 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP TRUCKS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

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

(DETAILS 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

CONCRETE WASHOUT AREA

PLOTTED: 6/19/2015 10:25:32 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD11-039.03\_SWMP DETAILS.DWG

Computer File Information	
Creation Date: 07/30/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_SWMP DETAILS.dwg	
AutoCAD 2014	Scale: AS SHOWN

MULLER ENGINEERING CO., INC.  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD. 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

MULLER

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed	
No Revisions:	
Revised:	
Void:	

WATER AND FLOOD CONTROL DISTRICT

Region 4 RDM

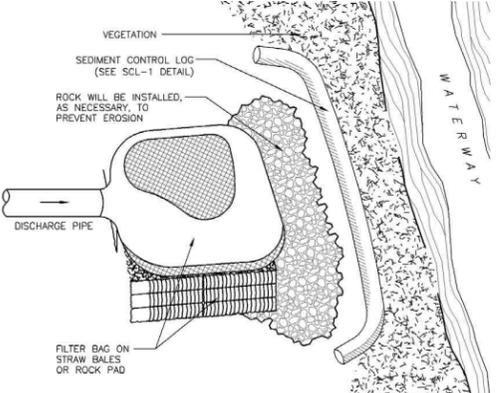
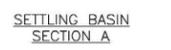
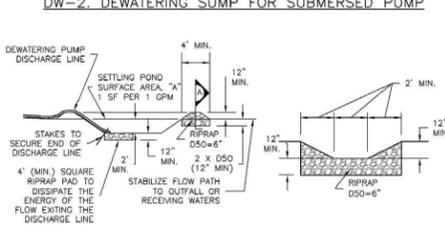
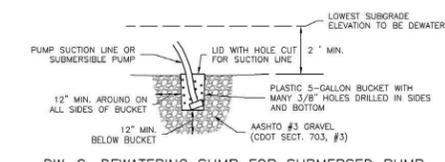
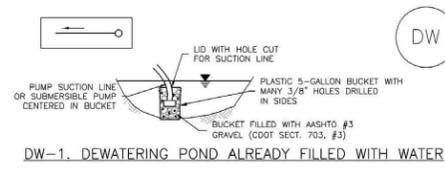
CITY OF BOULDER

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT

STORMWATER MANAGEMENT DETAILS

Designer:	CLK	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	SWMP	Subset Sheets:	SM-48

Project No./Code	
	STM 110-081
	18405
Sheet Number:	78



**DW-4. DEWATERING FILTER BAG**

**DEWATERING INSTALLATION NOTES**

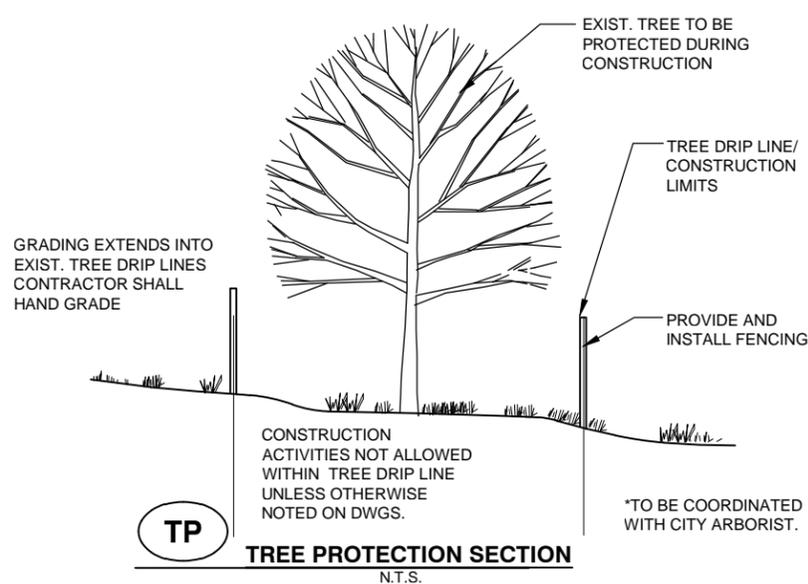
- SEE PLAN VIEW FOR:
  - LOCATION OF DEWATERING EQUIPMENT.
  - TYPE OF DEWATERING OPERATION (DW-1 TO DW-4).
- THE OWNER OR CONTRACTOR SHALL OBTAIN A CONSTRUCTION DISCHARGE (DEWATERING) PERMIT FROM THE STATE PRIOR TO ANY DEWATERING OPERATIONS DISCHARGING FROM THE SITE. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMIT.
- THE OWNER OR OPERATOR SHALL PROVIDE, OPERATE, AND MAINTAIN DEWATERING SYSTEMS OF SUFFICIENT SIZE AND CAPACITY TO PERMIT EXCAVATION AND SUBSEQUENT CONSTRUCTION IN DRY CONDITIONS AND TO LOWER AND MAINTAIN THE GROUNDWATER LEVEL A MINIMUM OF 2'-FEET BELOW THE LOWEST POINT OF EXCAVATION AND CONTINUOUSLY MAINTAIN EXCAVATIONS FREE OF WATER UNTIL BACK-FILLED TO FINAL GRADE.
- DEWATERING OPERATIONS SHALL USE ONE OR MORE OF THE DEWATERING SUMPS SHOWN ABOVE, WELL POINTS, OR OTHER MEANS APPROVED BY THE LOCAL JURISDICTION TO REDUCE THE PUMPING OF SEDIMENT, AND SHALL PROVIDE A TEMPORARY SEDIMENT BASIN OR FILTRATION BMP TO REDUCE SEDIMENT TO ALLOWABLE LEVELS PRIOR TO RELEASE OFF SITE OR TO A RECEIVING WATER. A SEDIMENT BASIN MAY BE USED IN LIEU OF SUMP DISCHARGE SETTLING BASIN SHOWN ABOVE IF A 4'-FOOT-SQUARE RIPRAP PAD IS PLACED AT THE DISCHARGE POINT AND THE DISCHARGE END OF THE LINE IS STAKED IN PLACE TO PREVENT MOVEMENT OF THE LINE.

**DEWATERING 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.
- DEWATERING BMPs ARE REQUIRED IN ADDITION TO ALL OTHER PERMIT REQUIREMENTS.
- TEMPORARY SETTLING BASINS SHALL BE REMOVED WHEN NO LONGER NEEDED FOR DEWATERING OPERATIONS. ANY DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

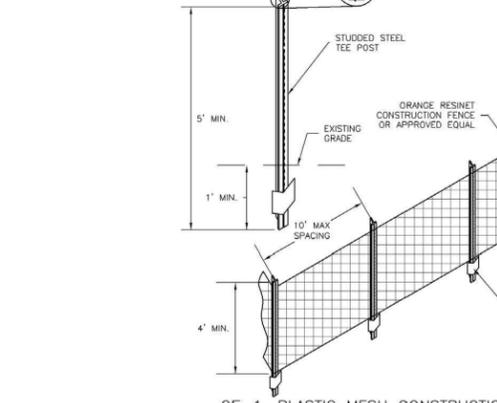
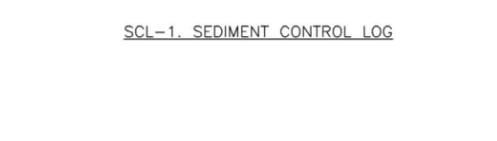
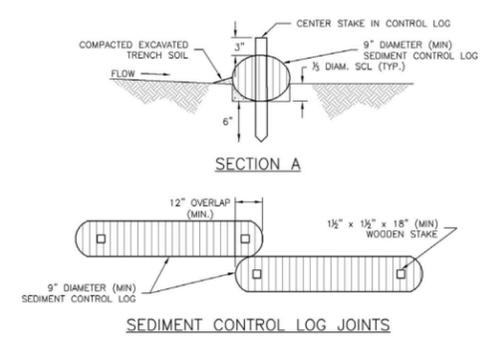
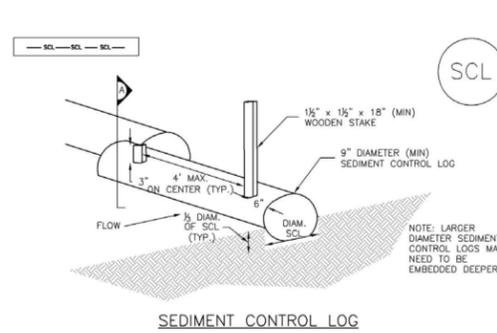
**NOTE:** MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

**DW DEWATERING AND PIPE DIVERSION**



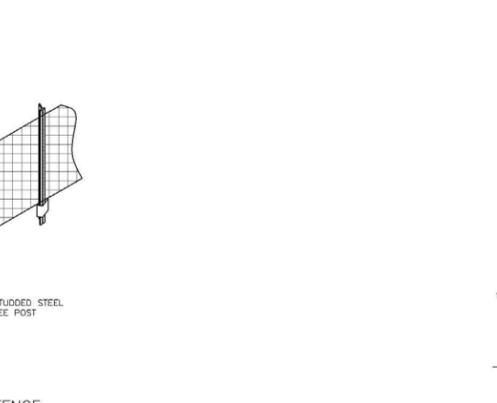
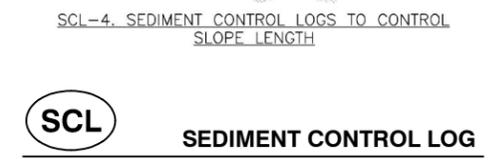
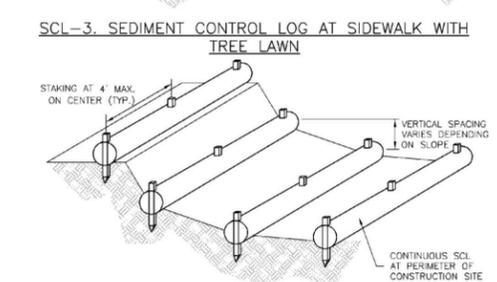
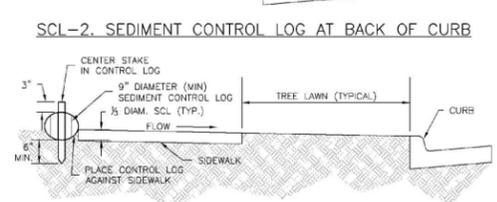
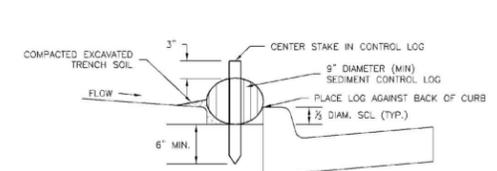
**TP TREE PROTECTION SECTION**  
N.T.S.

\*TO BE COORDINATED WITH CITY ARBORIST.



**CONSTRUCTION FENCE INSTALLATION NOTES**

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



**TSC-1. CULVERT CROSSING**

**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 1/3 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 BY REFERENCE)

**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.

**SCL SEDIMENT CONTROL LOG**

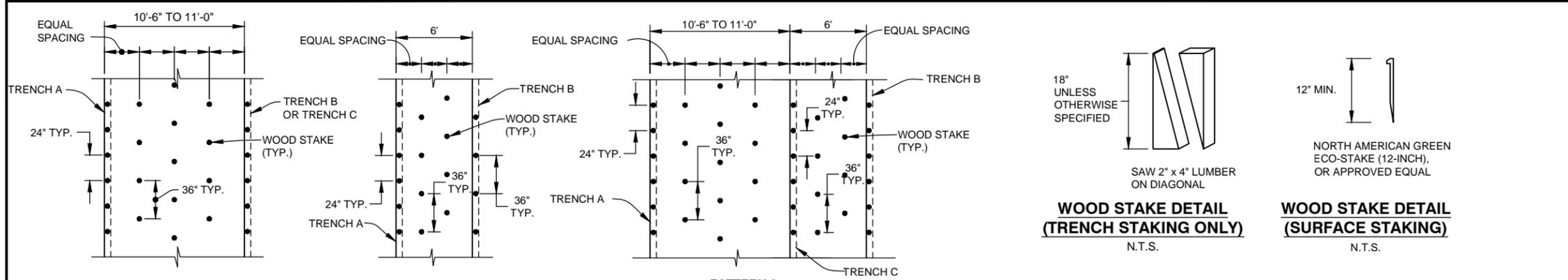
**CF CONSTRUCTION FENCE**

**TSC TEMPORARY STREAM CROSSING**

PLOTTED: 6/19/2015 10:25:37 AM NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD11-039.03\_SWMP DETAILS.DWG

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 		<b>Sheet Revisions</b>			<b>As Constructed</b>			WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			Project No./Code	
Creation Date: 07/30/14	Initials: JHK			Date:	Comments	Init.	No Revisions:			STORMWATER MANAGEMENT DETAILS			STM 110-081	
Last Modification Date: 06/18/15	Initials: JHK						Revised:			Designer: CLK			Structure	
Full Path: P:\11-039.03\CAD							Void:			Detailer: JHK			Numbers	
Drawing File Name: 11-039.03_SWMP DETAILS.dwg										Sheet Subset: SWMP			Subset Sheets: SM-49	
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03									Sheet Number: 79			

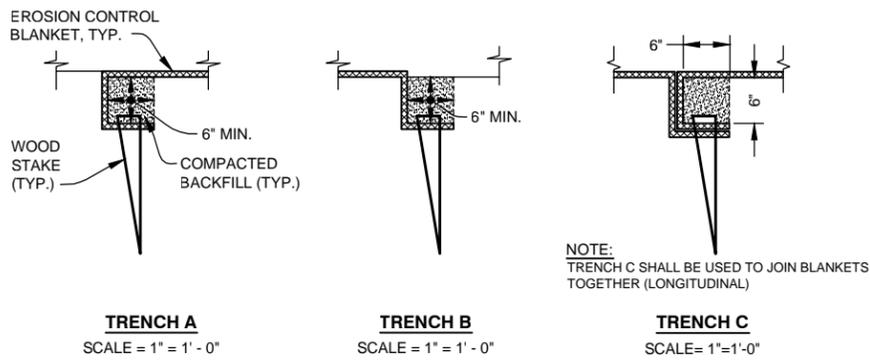
PLOTTED: 6/19/2015 10:25:42 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_SWMP DETAILS.DWG



**NOTE:**  
INSTALL WOOD STAKES SUCH THAT ONLY 1" IS EXPOSED ABOVE GROUND.

**STAKING PATTERNS FOR EROSION CONTROL BLANKET**

SCALE: 1" = 5'

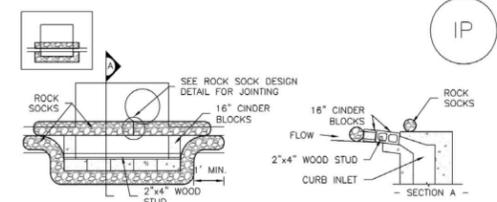


**ANCHOR TRENCH DETAILS FOR EROSION CONTROL BLANKETS**

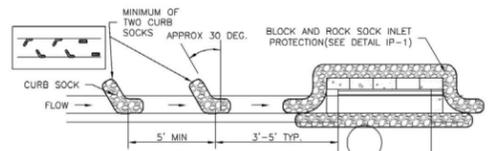
**GENERAL NOTES:**

- SEED AND MULCH PRIOR TO INSTALLING BLANKET.
- POSITION ROW STAKES IN AN ALTERNATING STAGGER PATTERN SO THAT STAKES FOR THE ROW ARE POSITIONED IN BETWEEN STAKES FOR ADJACENT ROWS.
- STAKES SHALL BE INSTALLED FULL-DEPTH TO SECURELY FASTEN THE BLANKET TO THE SOIL.
- CONTRACTOR SHALL USE STEEL PENETRATION RODS OR OTHER MEANS AS NECESSARY TO PENETRATE RIPRAP LAYER WITH WOOD STAKES.

- ECB** KOIRMAT 700 COCONUT FIBER EROSION CONTROL MATTING (WOVEN MATTING OF COIR YARN) MANUFACTURED BY NEDIA ENTERPRISES, INC. OR APPROVED EQUIVALENT.
- SRB** SOIL RETENTION BLANKET (STRAW-COCONUT) BIODEGRADABLE CLASS 1.

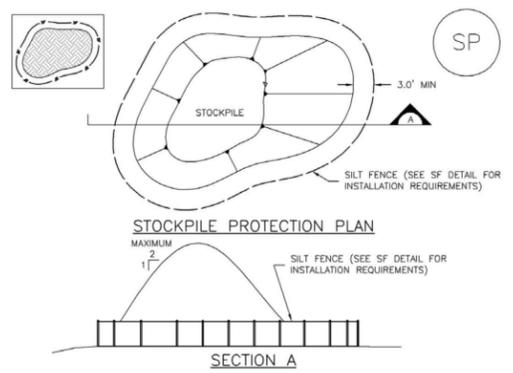


- BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES**
- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
  - CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
  - GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



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

**IP INLET PROTECTION**

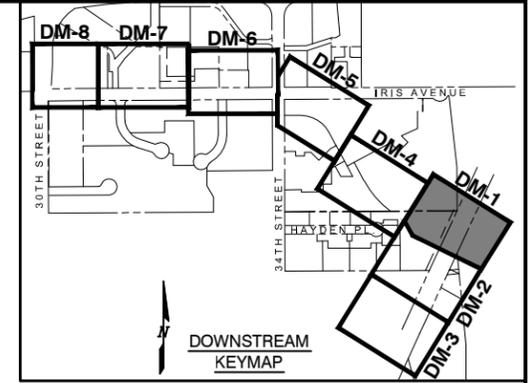


- STOCKPILE PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
    - LOCATION OF STOCKPILES.
    - TYPE OF STOCKPILE PROTECTION.
  - INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER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

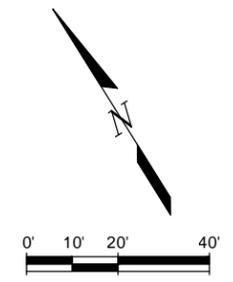
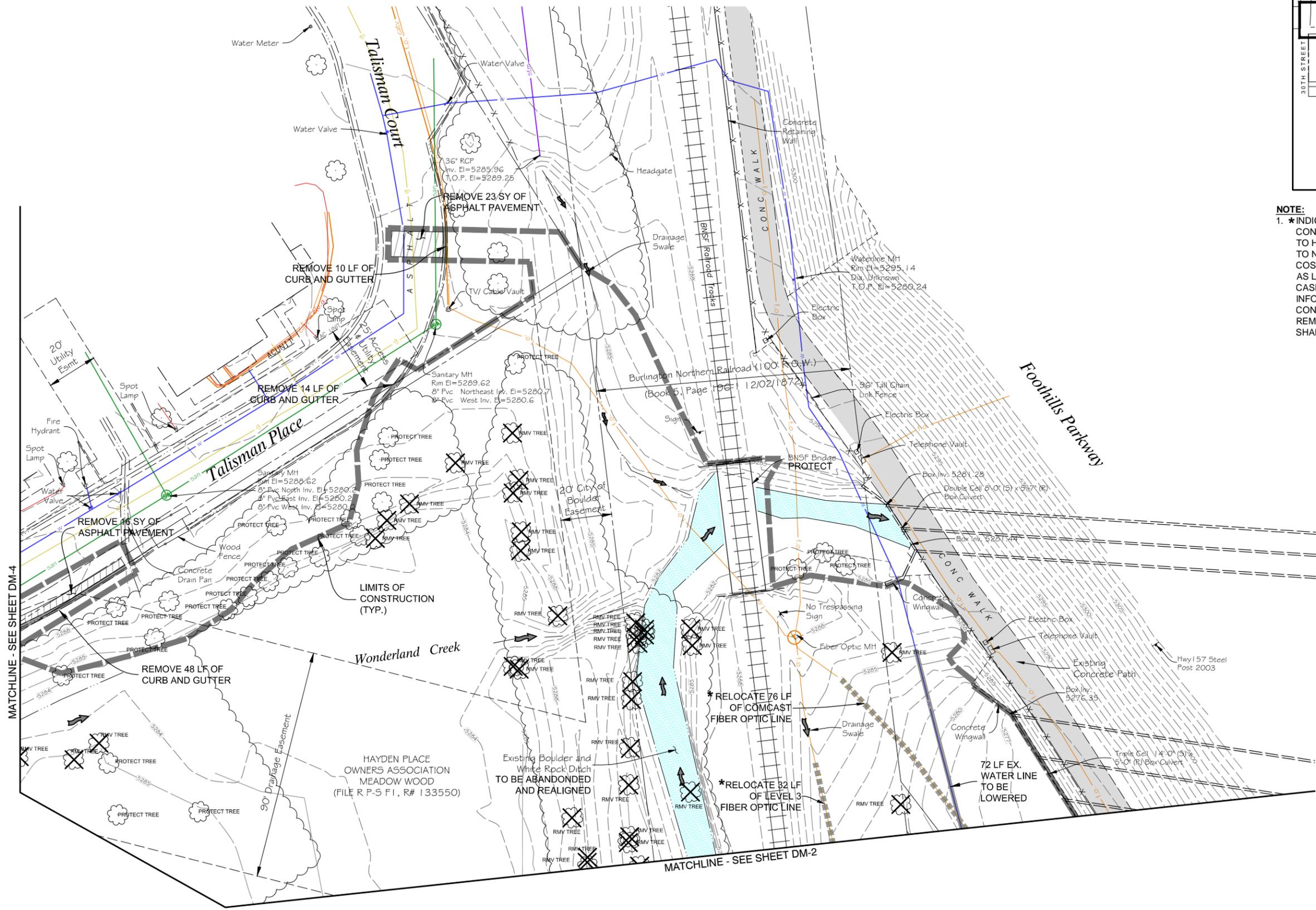
- STOCKPILE PROTECTION MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
  - STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.
- (DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)
- NOTE:** MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

**SP STOCKPILE PROTECTION**

<b>Computer File Information</b>		<b>MULLER ENGINEERING CO., INC.</b>		<b>Sheet Revisions</b>		<b>As Constructed</b>		WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT		Project No./Code	
Creation Date: 07/30/14	Initials: JHK	CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939		Date:	Comments:	Init.	No Revisions:	STORMWATER MANAGEMENT DETAILS		STM 110-081	
Last Modification Date: 06/18/15	Initials: JHK						Revised:			Designer: CLK	Structure Numbers
Full Path: P:\11-039.03\CAD							Void:	Detailer: JHK			
Drawing File Name: 11-039.03_SWMP DETAILS.dwg								Sheet Subset: SWMP	Subset Sheets: SM-50	Sheet Number: 80	
AutoCAD 2014	Scale: AS SHOWN	MEC PROJECT NO. 11039.03									

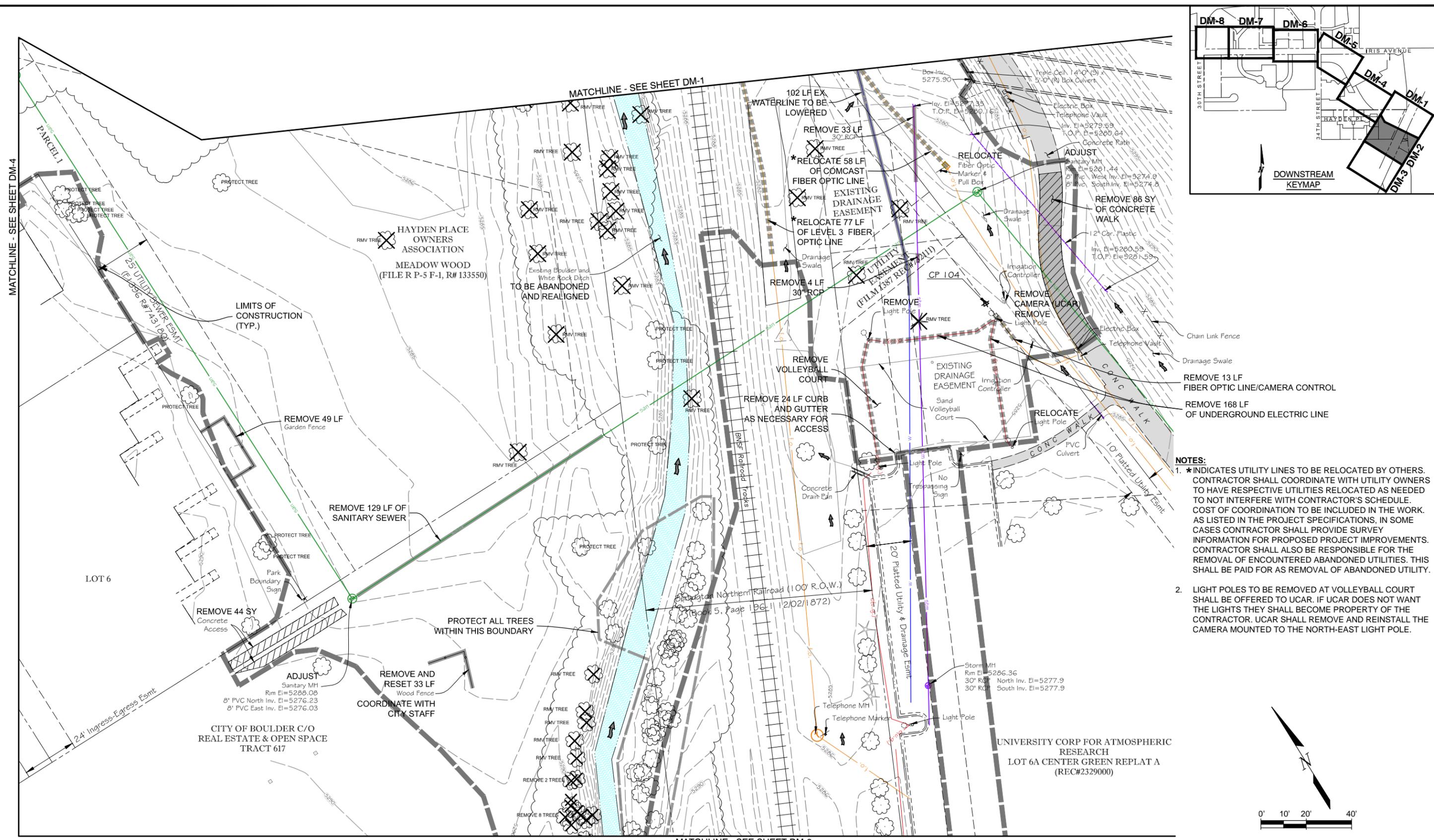


**NOTE:**  
 1. \* INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS. IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.



PLOTTED: 6/19/2015 10:26:13 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03 DEMO PLANS.DWG

<b>Computer File Information</b> Creation Date: 07/18/13 Initials: JHK Last Modification Date: 06/18/15 Initials: JHK Full Path: P:\11-039.03\CAD Drawing File Name: 11-039.03_DEMO PLANS.dwg AutoCAD 2014 Scale: AS SHOWN		<b>MULLER ENGINEERING CO., INC.</b> CONSULTING ENGINEERS 777 S. WADSWORTH BLVD. 4-100 LAKEWOOD, COLORADO 80226 (303) 988-4939 MEC PROJECT NO. 11039.03				<b>Sheet Revisions</b> Date: Comments Init.		<b>As Constructed</b> No Revisions: Revised: Void:					WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT <b>DEMOLITION AND REMOVAL PLAN</b>			Project No./Code STM 110-081	
										Designer: JW3 Structure Numbers Detailer: JHK		18405					
										Sheet Subset: DEMO		Subset Sheets: DM-1		Sheet Number: 81			



- NOTES:**
- ★ INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.
  - LIGHT POLES TO BE REMOVED AT VOLLEYBALL COURT SHALL BE OFFERED TO UCAR. IF UCAR DOES NOT WANT THE LIGHTS THEY SHALL BECOME PROPERTY OF THE CONTRACTOR. UCAR SHALL REMOVE AND REINSTALL THE CAMERA MOUNTED TO THE NORTH-EAST LIGHT POLE.

PLOTTED: 6/19/2015 10:26:20 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03 DEMO PLANS.DWG

Computer File Information	
Creation Date: 07/18/13	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

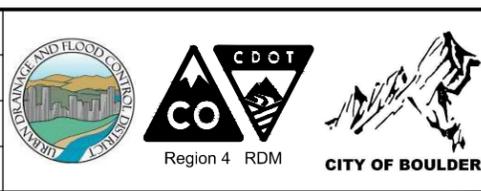
**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

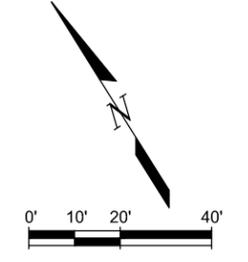
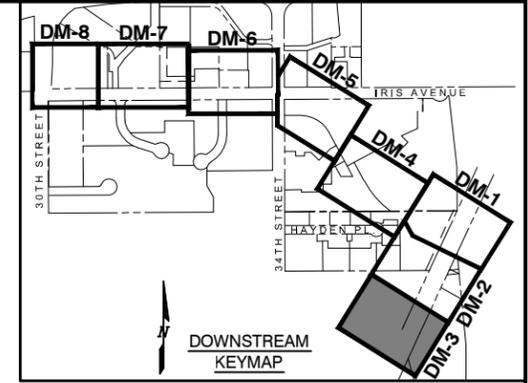
As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
DEMOLITION AND REMOVAL PLAN			
Designer:	JW3	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	DEMO	Subset Sheets:	DM-2

Project No./Code
STM 110-081
18405
Sheet Number: 82

PLOTTED: 6/19/2015 10:26:24 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_DEMO PLANS.DWG



Computer File Information	
Creation Date: 07/18/13	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
**MULLER**  
 MEC PROJECT NO. 11039.03



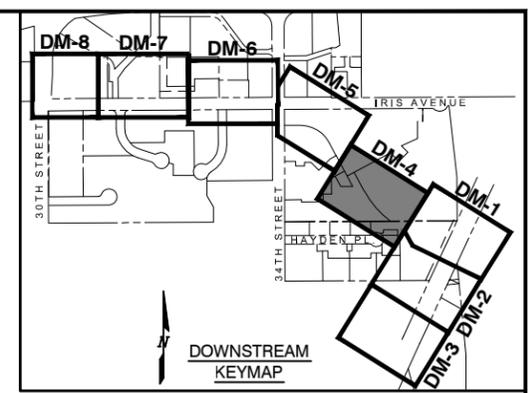
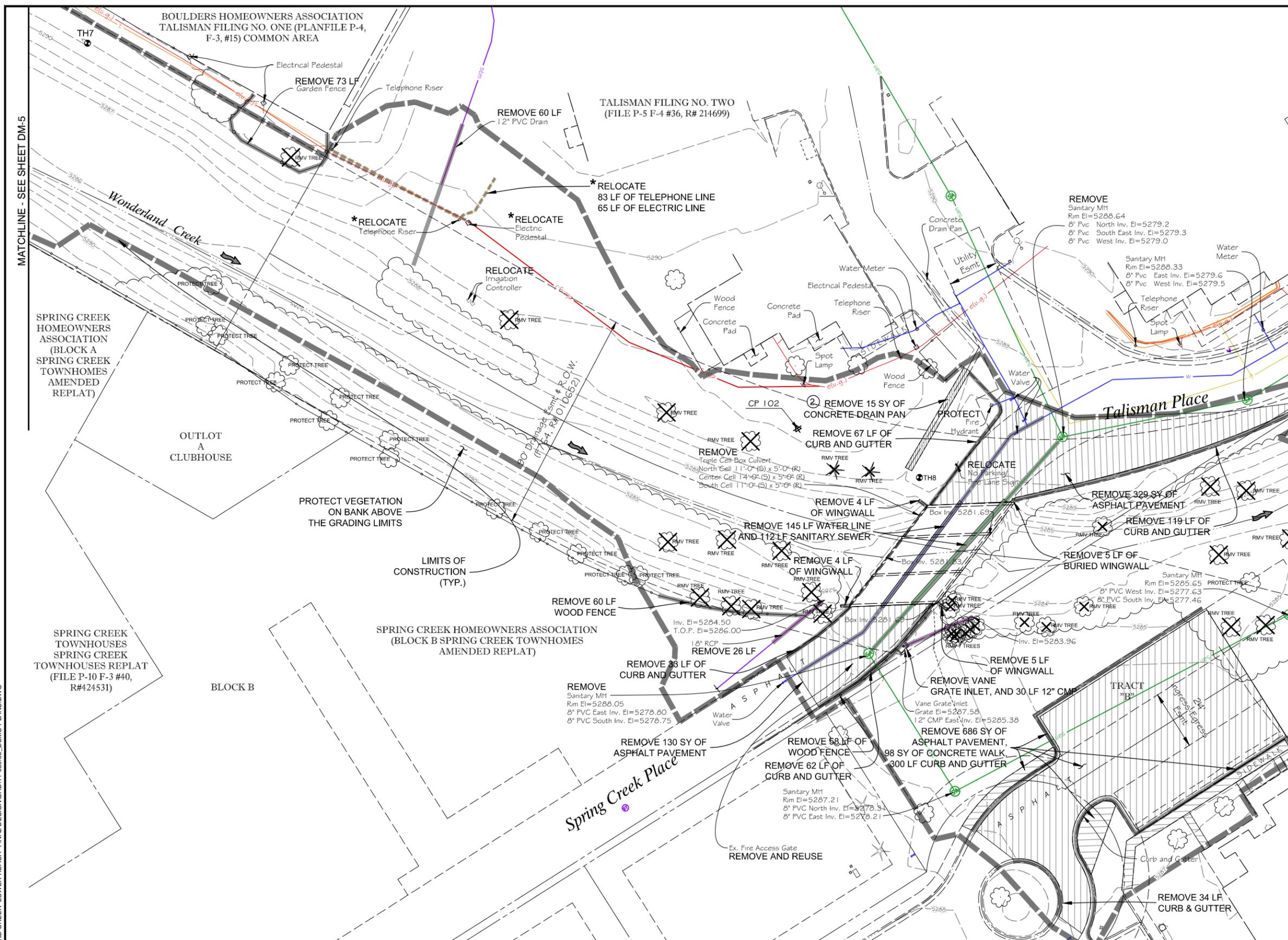
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
DEMOLITION AND REMOVAL PLAN			
Designer:	JW3	Structure Numbers	
Detailer:	JHK		
Sheet Subset:	DEMO	Subset Sheets:	DM-3

Project No./Code	STM 110-081
	18405
Sheet Number:	83



- NOTES:**
- \* INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.
  - ALL WILLOWS UPSTREAM OF SPRING CREEK PLACE WITHIN THE CHANNEL GRADING SHALL BE FULLY REMOVED (INCLUDING ROOT MASS) AND DISPOSED OFFSITE. INCLUDE IN CLEARING AND GRUBBING.
  - SAWCUT DRAIN PAN AT BACK OF CURB. INCLUDE IN COST OF WORK.

Computer File Information	
Creation Date: 07/18/13	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

MULLER

MEC PROJECT NO. 11039.03



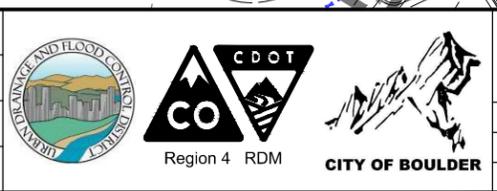
Sheet Revisions		
Date:	Comments	Init.

**As Constructed**

No Revisions:

Revised:

Void:



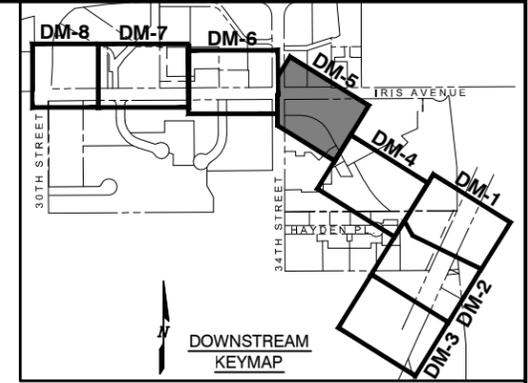
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>DEMOLITION AND REMOVAL PLAN</b>			
Designer:	JW3	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	DEMO	Subset Sheets:	DM-4

Project No./Code	
STM 110-081	
18405	
Sheet Number:	84

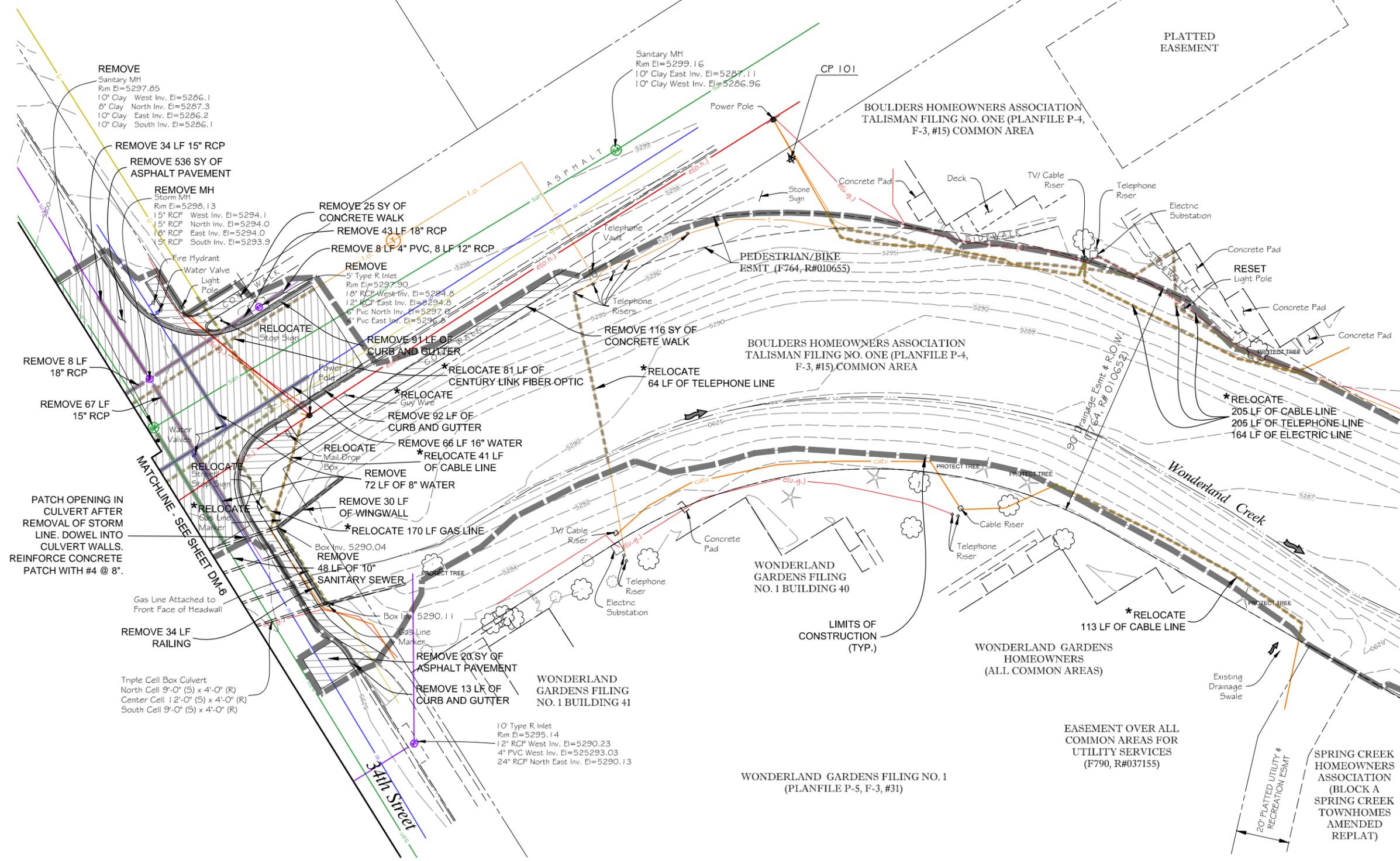
PLOTTED: 6/19/2015 10:26:30 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_DEMO PLANS.DWG

LOT 5 BOULDER HEALTH PROFESSIONS CONDOMINIUMS (PLANFILE P-9, F-1, #2 & 3)

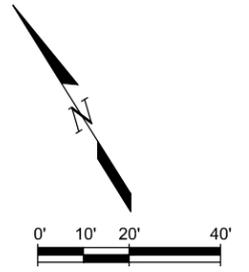
LOT 4 BOULDER HEALTH PROFESSIONS CONDOMINIUMS (PLANFILE P-9, F-1, #2 & 3)



**NOTES:**  
 1. \*INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.



MATCHLINE - SEE SHEET DM-4



PLOTTED: 6/19/2015 10:26:37 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03 DEMO PLANS.DWG

Computer File Information	
Creation Date: 07/18/13	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03

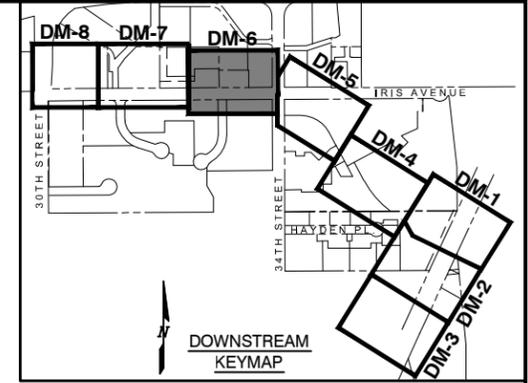


Sheet Revisions		
Date:	Comments	Init.

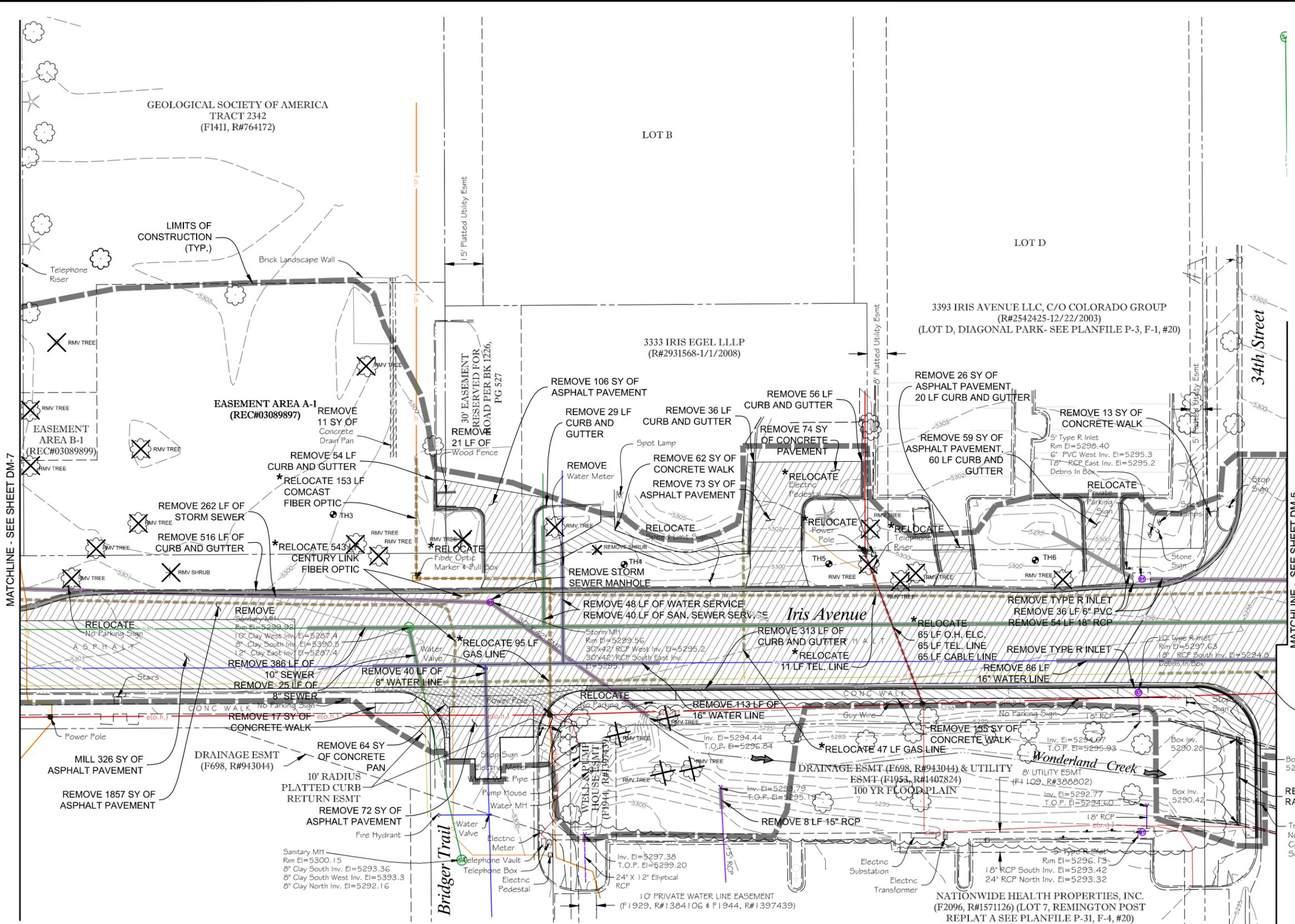
As Constructed
No Revisions:
Revised:
Void:

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
DEMOLITION AND REMOVAL PLAN			
Designer:	JW3	Structure	Numbers
Detailer:	JHK		
Sheet Subset:	DEMO	Subset Sheets:	DM-5

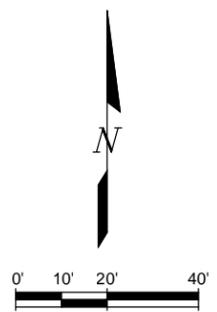
Project No./Code
STM 110-081
18405
Sheet Number: 85



**NOTES:**  
 1. \* INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.



\*RELOCATE 46 LF GAS LINE  
 Box Inv. 5290.79  
 REMOVE 34 LF RAILING  
 Triple Cell Box Culvert  
 North Cell 9'-0" (5) x 4'-0" (R)  
 Center Cell 12'-0" (5) x 4'-0" (R)  
 South Cell 9'-0" (5) x 4'-0" (R)  
 Box Inv. 5290.42



PLOTTED: 6/19/2015 10:26:44 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03 DEMO PLANS.DWG

Computer File Information	
Creation Date: 07/18/13	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



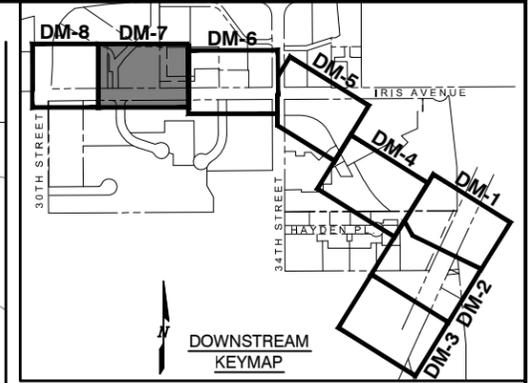
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

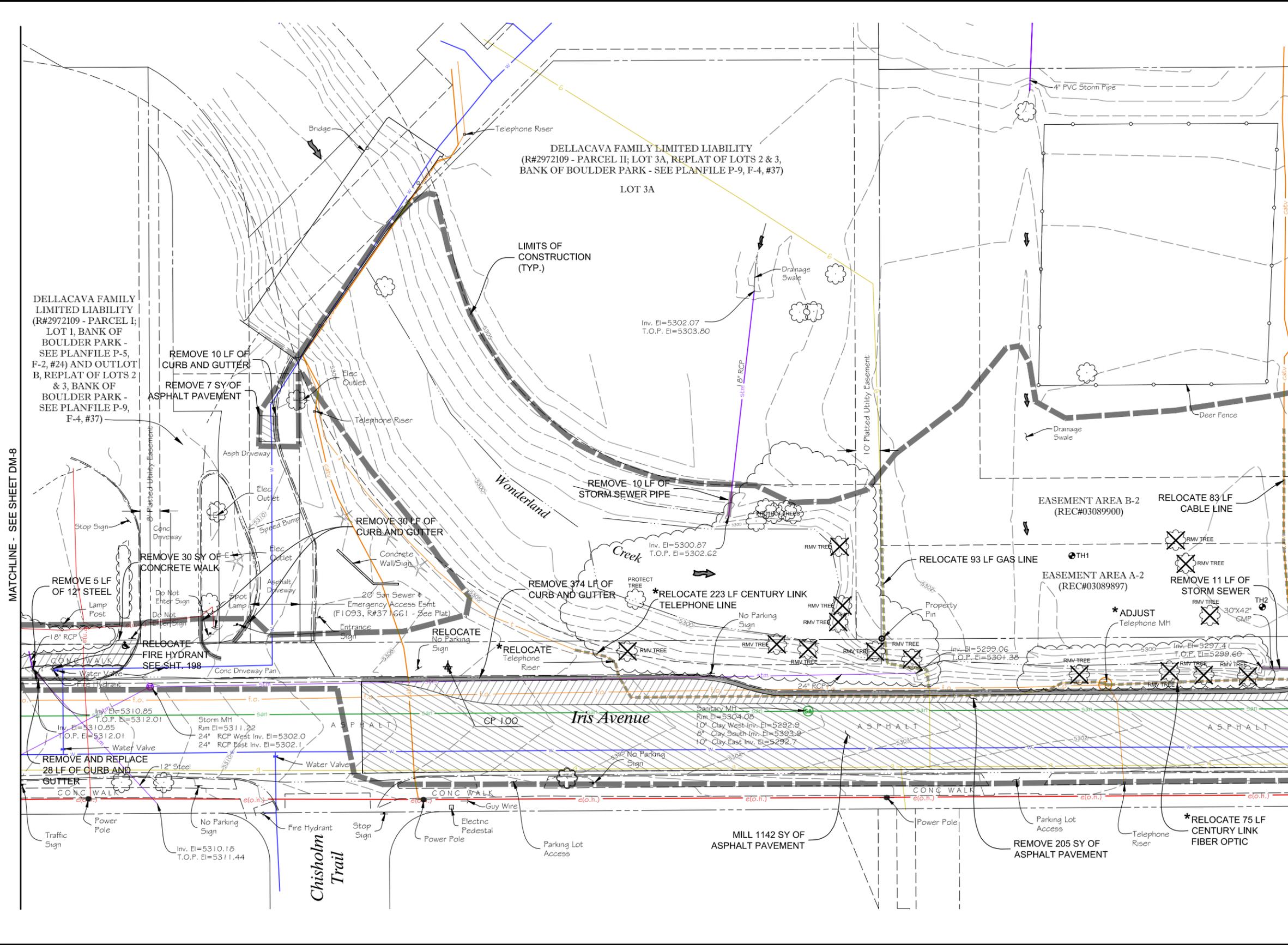
Region 4 RDM

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
DEMOLITION AND REMOVAL PLAN			
Designer:	JW3	Structure	Numbers
Detailer:	JHK		
Sheet Subset:	DEMO	Subset Sheets:	DM-6

Project No./Code
STM 110-081
18405
Sheet Number: 86

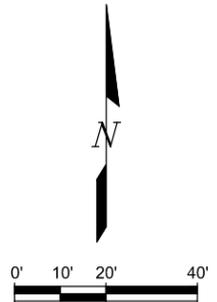


**NOTES:**  
 1. \* INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.



MATCHLINE - SEE SHEET DM-6

MATCHLINE - SEE SHEET DM-8



PLOTTED: 6/19/2015 10:26:50 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03 DEMO PLANS.DWG

Computer File Information	
Creation Date: 07/18/13	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS.dwg	
AutoCAD 2014	Scale: AS SHOWN FEET

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

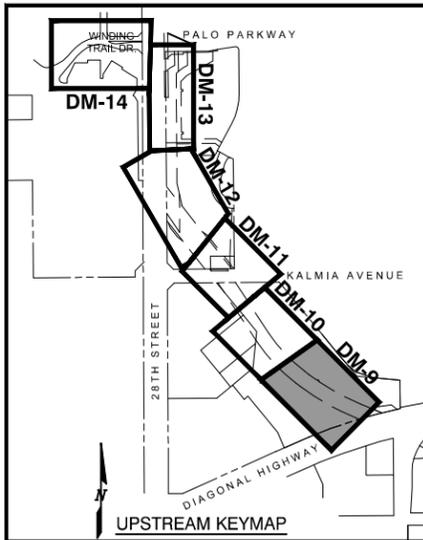
As Constructed
No Revisions:
Revised:
Void:



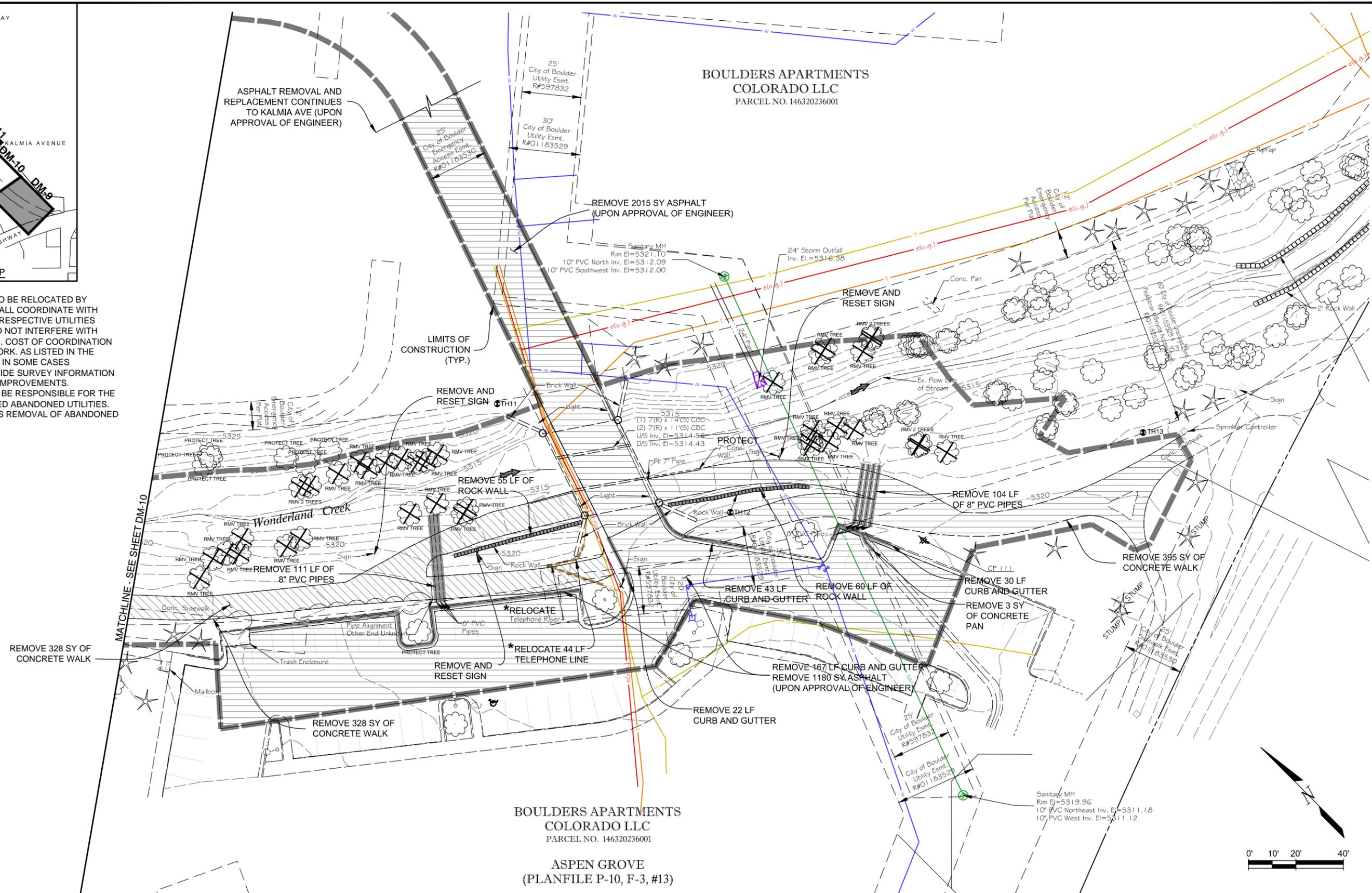
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
DEMOLITION AND REMOVAL PLAN			
Designer:	JW3	Structure	Numbers
Detailer:	JHK		
Sheet Subset:	DEMO	Subset Sheets:	DM-7

Project No./Code	STM 110-081
	18405
Sheet Number:	87

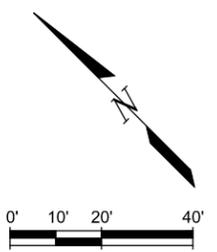




**NOTES:**  
 1. \*INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.



**BOULDERS APARTMENTS  
 COLORADO LLC**  
 PARCEL NO. 146320236001  
**ASPEN GROVE  
 (PLANFILE P-10, F-3, #13)**



PLOTTED: 6/19/2015 10:27:27 AM  
 NAME: P:\11-039.03 DEMO PLANS NORTH.DWG

Computer File Information	
Creation Date: 11/10/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

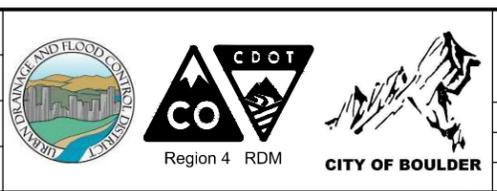
**MULLER**

MEC PROJECT NO. 11039.03



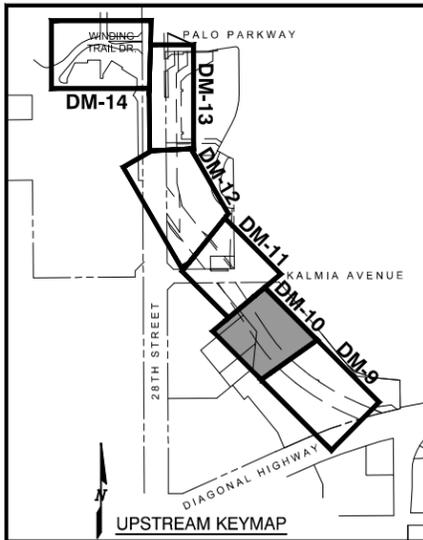
Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:



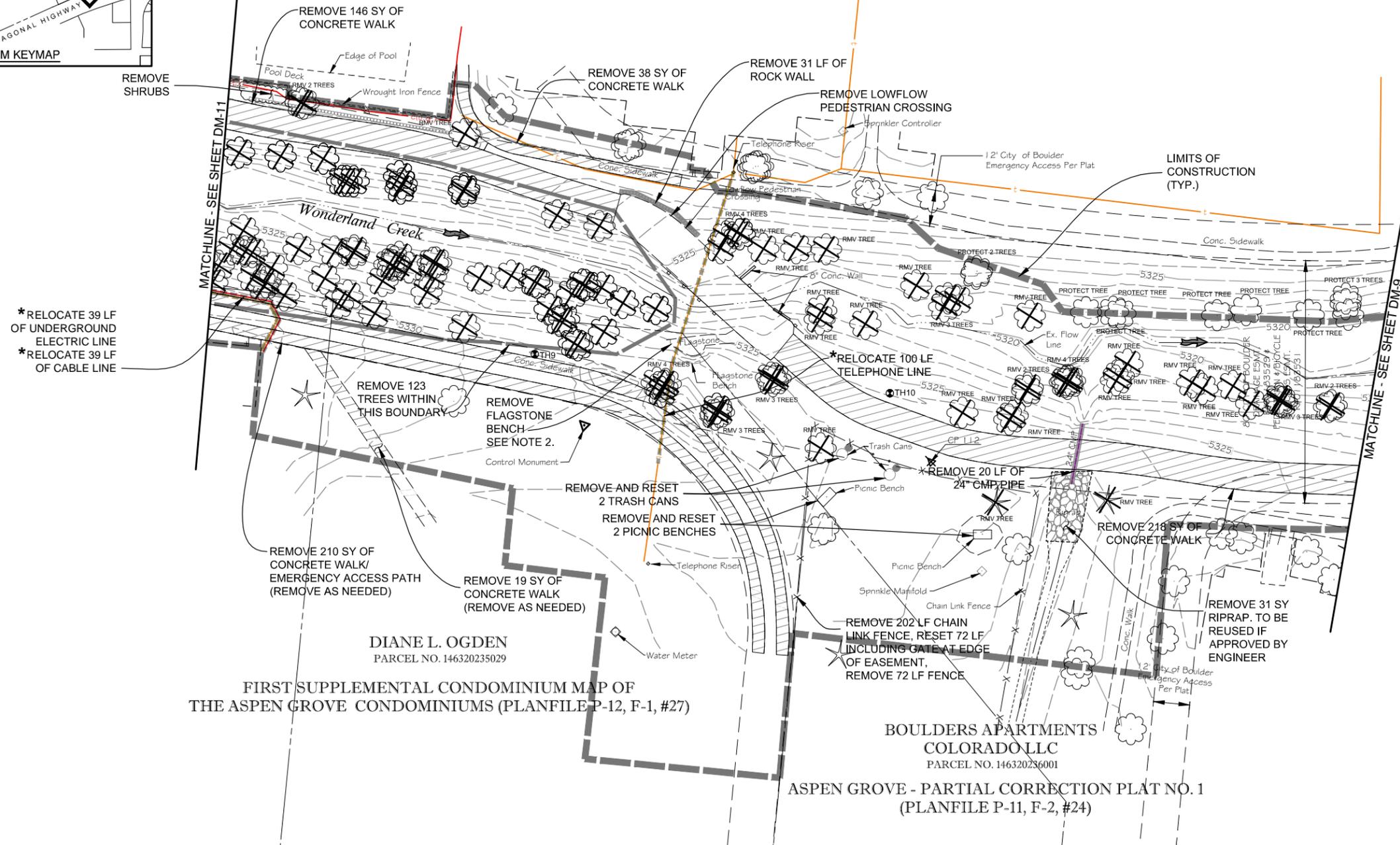
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
DEMOLITION AND REMOVAL PLAN			
Designer:	MKN	Structure Numbers:	
Detailer:	JHK	Sheet Subset:	DEMO
Sheet Subset:	DEMO	Subset Sheets:	DM-9

Project No./Code
STM 110-081
18405
Sheet Number: 89



BOULDERS APARTMENTS  
 COLORADO LLC  
 PARCEL NO. 146320236001  
 ASPEN GROVE  
 (PLANFILE P-10, F-3, #13)

- NOTES:**
- \* INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.
  - CONTRACTOR SHALL DISASSEMBLE AND REMOVE STONE WALLS, BENCH, AND FLAGSTONE PAVERS. CLEAN GROUT FROM STONES, PALLETIZE, AND STORE FOR REINSTALLATION.

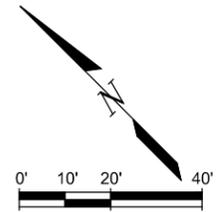


\*RELOCATE 39 LF OF UNDERGROUND ELECTRIC LINE  
 \*RELOCATE 39 LF OF CABLE LINE

DIANE L. OGDEN  
 PARCEL NO. 146320235029

FIRST SUPPLEMENTAL CONDOMINIUM MAP OF  
 THE ASPEN GROVE CONDOMINIUMS (PLANFILE P-12, F-1, #27)

BOULDERS APARTMENTS  
 COLORADO LLC  
 PARCEL NO. 146320236001  
 ASPEN GROVE - PARTIAL CORRECTION PLAT NO. 1  
 (PLANFILE P-11, F-2, #24)



PLOTTED: 6/19/2015 10:27:33 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_DEMO PLANS NORTH.DWG

Computer File Information	
Creation Date: 11/10/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD. 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03

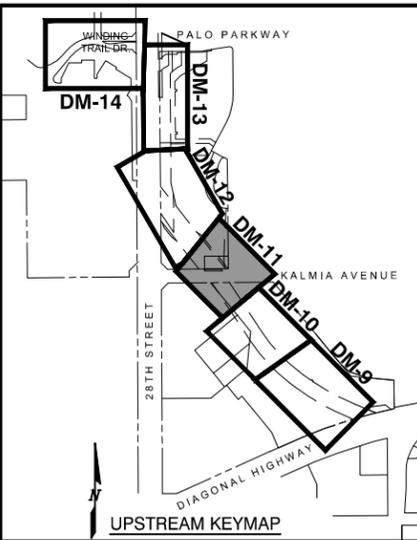


Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

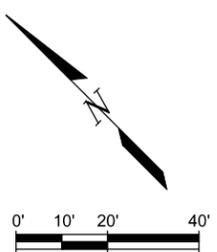
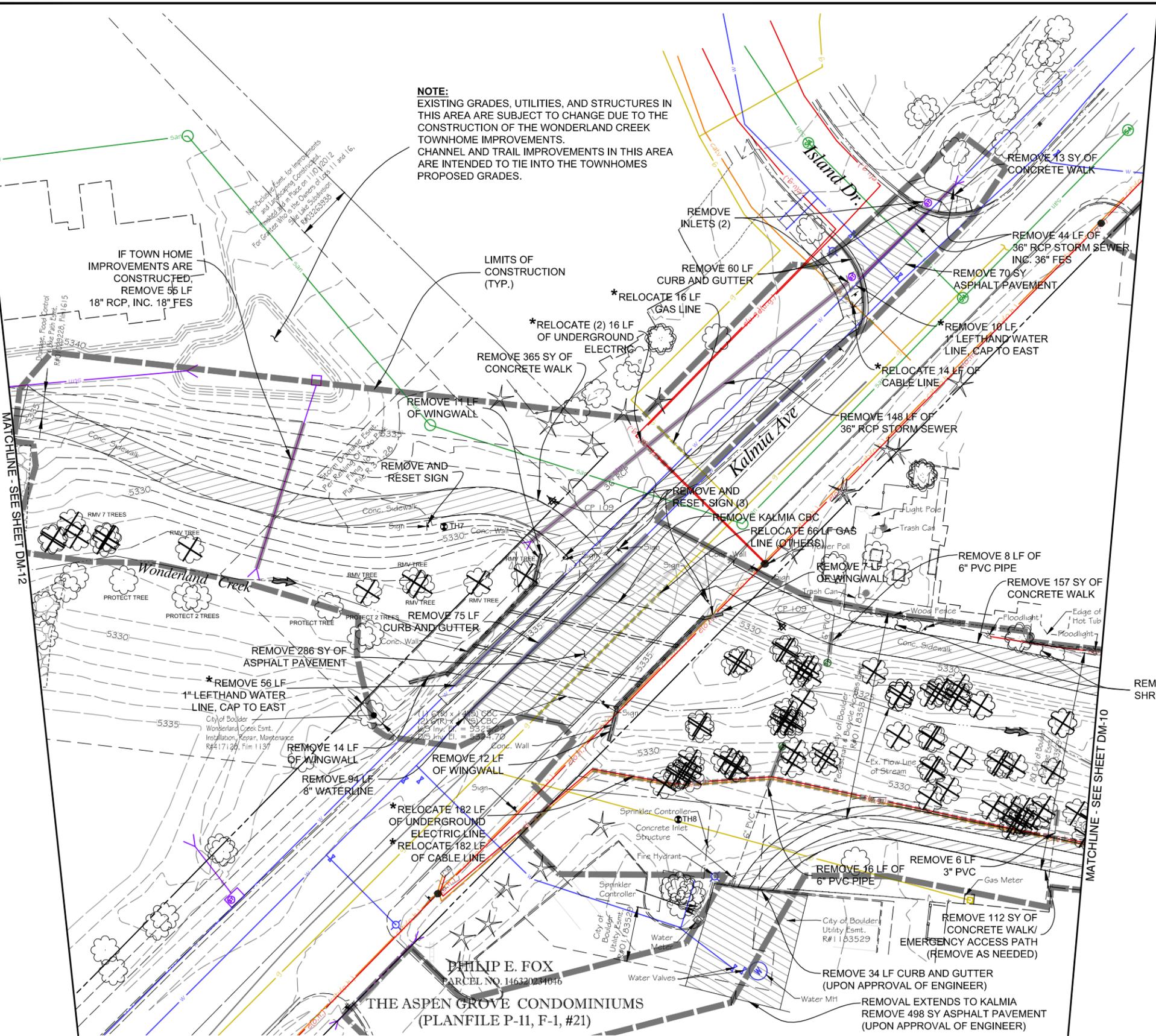
WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>DEMOLITION AND REMOVAL PLAN</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	DEMO	Subset Sheets:	DM-10

Project No./Code	STM 110-081
	18405
Sheet Number:	90



**NOTES:**  
 1. \*INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.

**NOTE:**  
 EXISTING GRADES, UTILITIES, AND STRUCTURES IN THIS AREA ARE SUBJECT TO CHANGE DUE TO THE CONSTRUCTION OF THE WONDERLAND CREEK TOWNHOME IMPROVEMENTS. CHANNEL AND TRAIL IMPROVEMENTS IN THIS AREA ARE INTENDED TO TIE INTO THE TOWNHOMES PROPOSED GRADES.



PLOTTED: 6/19/2015 10:27:38 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03 DEMO PLANS NORTH.DWG

Computer File Information	
Creation Date: 11/10/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03 DEMO PLANS NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed
No Revisions:
Revised:
Void:

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
DEMOLITION AND REMOVAL PLAN			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	DEMO	Subset Sheets:	DM-11

Project No./Code	STM 110-081
	18405
Sheet Number:	91

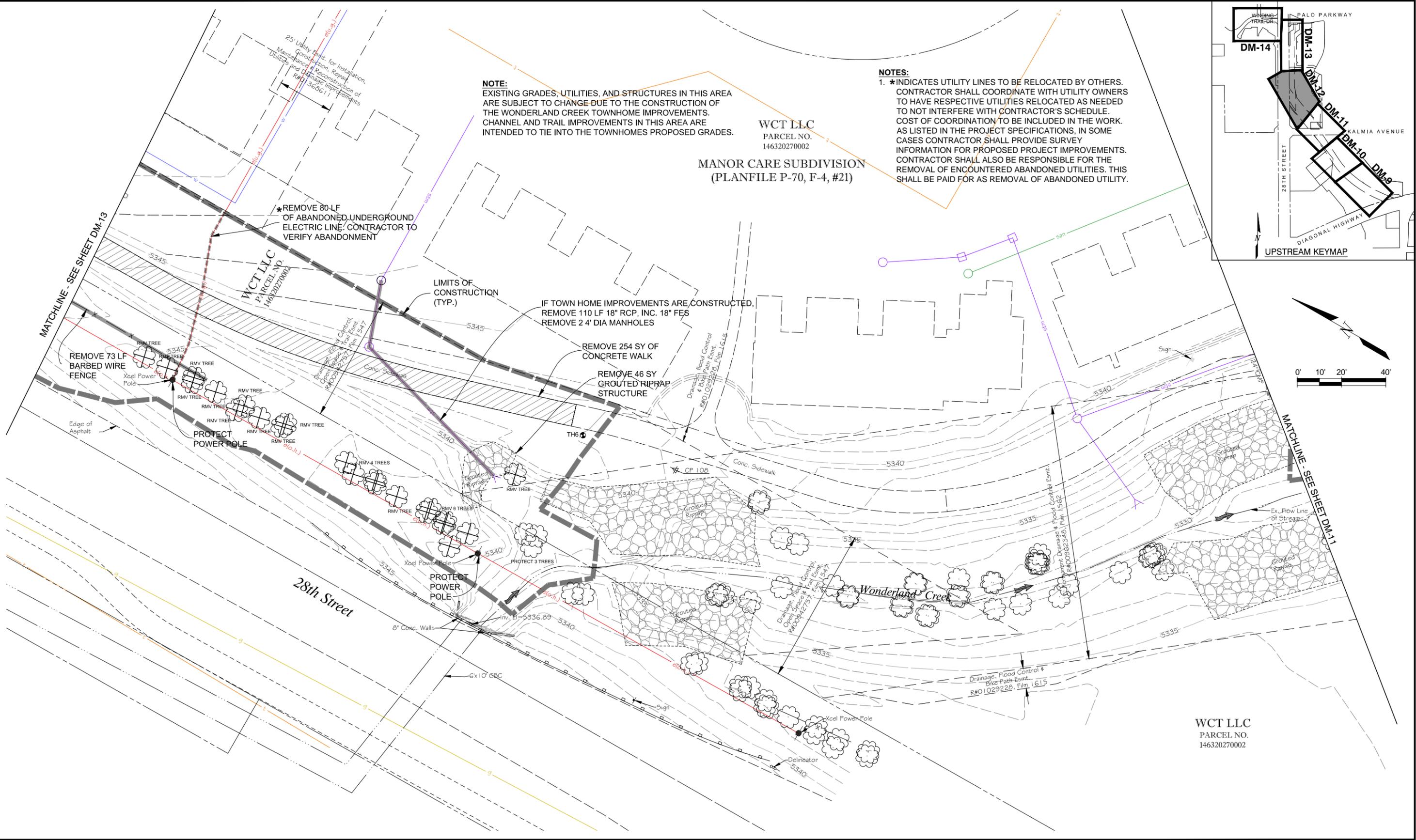
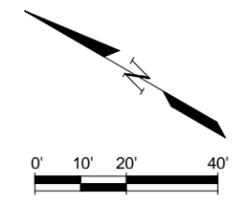
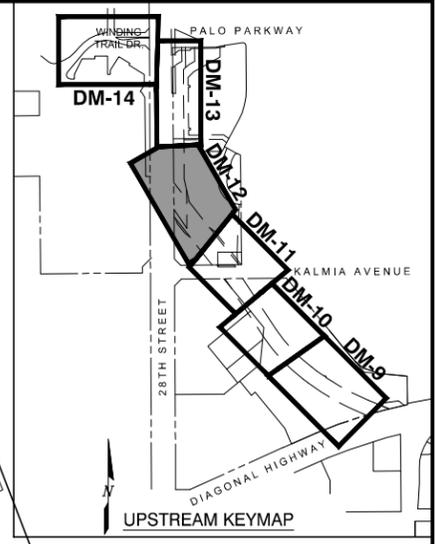
**NOTE:**  
EXISTING GRADES, UTILITIES, AND STRUCTURES IN THIS AREA ARE SUBJECT TO CHANGE DUE TO THE CONSTRUCTION OF THE WONDERLAND CREEK TOWNHOME IMPROVEMENTS. CHANNEL AND TRAIL IMPROVEMENTS IN THIS AREA ARE INTENDED TO TIE INTO THE TOWNHOMES PROPOSED GRADES.

WCT LLC  
PARCEL NO.  
146320270002

**MANOR CARE SUBDIVISION  
(PLANFILE P-70, F-4, #21)**

**NOTES:**

1. \*INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.



PLOTTED: 6/22/2015 9:57:50 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03 DEMO PLANS NORTH.DWG

Computer File Information	
Creation Date: 11/10/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD., 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

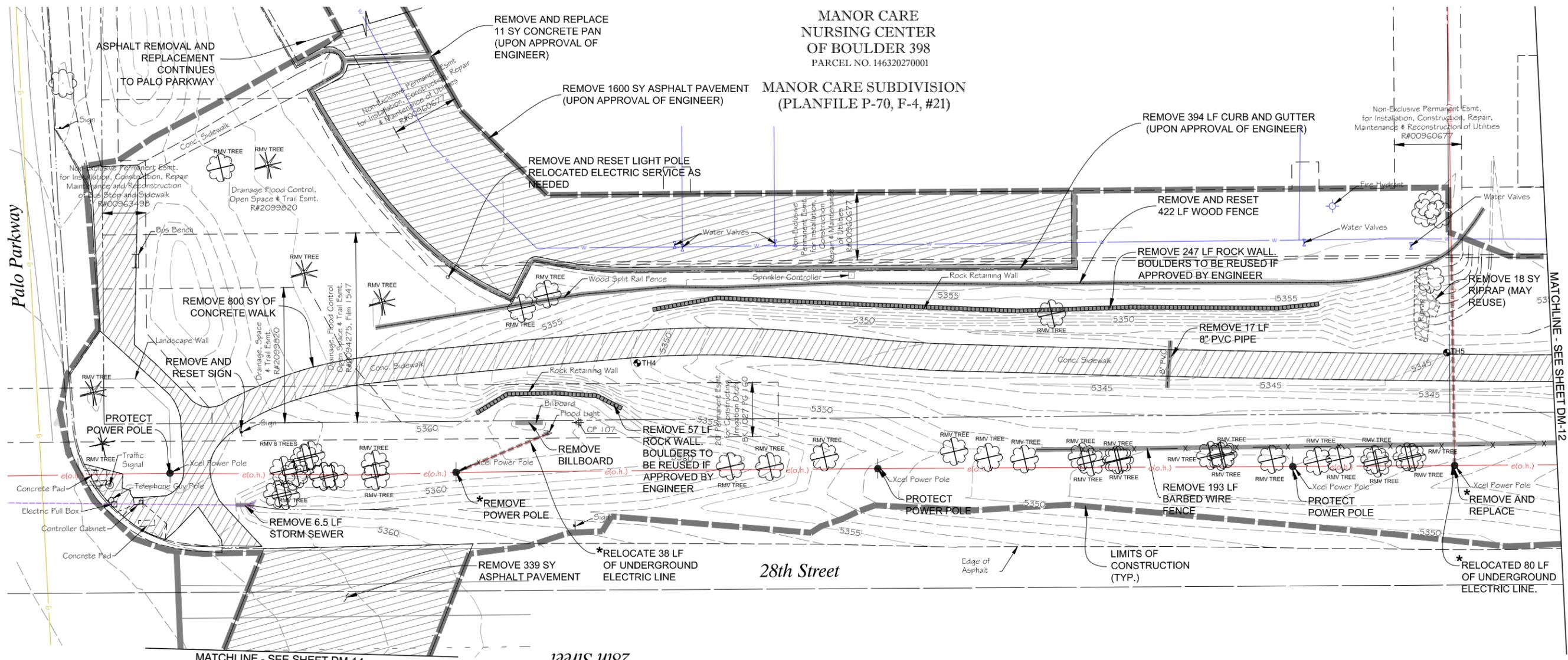
As Constructed
No Revisions:
Revised:
Void:

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
DEMOLITION AND REMOVAL PLAN			
Designer:	MKN	Structure Numbers	
Detailer:	JHK	Numbers	
Sheet Subset:	DEMO	Subset Sheets:	DM-12

Project No./Code
STM 110-081
18405
Sheet Number: 92

**MANOR CARE  
NURSING CENTER  
OF BOULDER 398**  
PARCEL NO. 146320270001

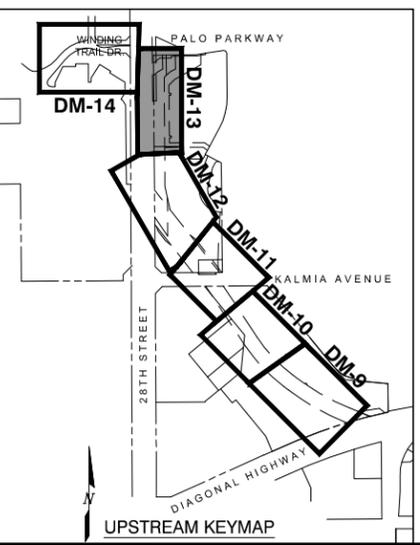
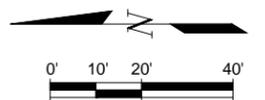
**MANOR CARE SUBDIVISION  
(PLANFILE P-70, F-4, #21)**



MATCHLINE - SEE SHEET DM-14

MATCHLINE - SEE SHEET DM-12

**NOTES:**  
1. \*INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.



Computer File Information	
Creation Date: 11/10/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
CONSULTING ENGINEERS  
777 S. WADSWORTH BLVD., 4-100  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

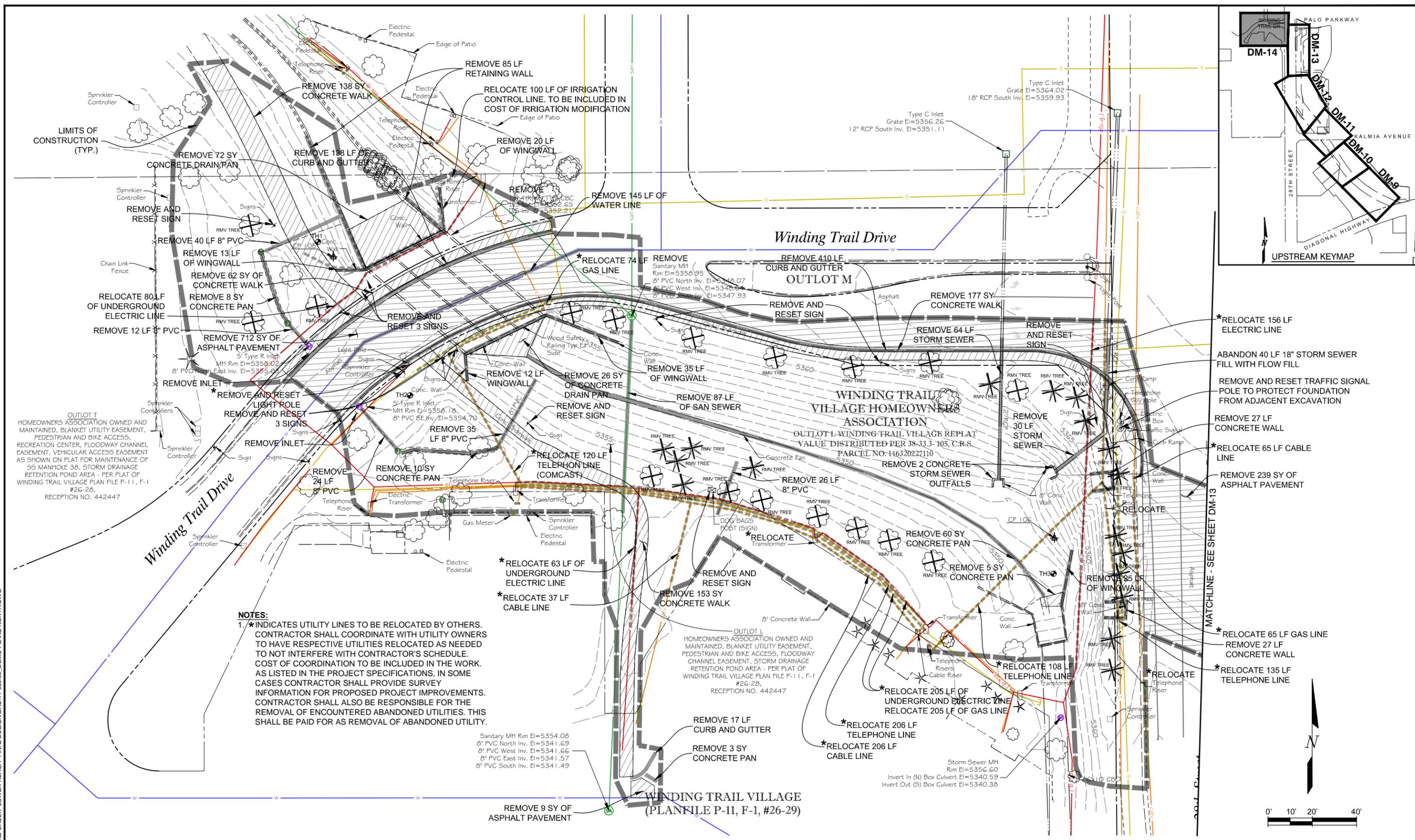
As Constructed
No Revisions:
Revised:
Void:



WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>DEMOLITION AND REMOVAL PLAN</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	DEMO	Subset Sheets:	DM-13

Project No./Code	STM 110-081
	18405
Sheet Number:	93

PLOTTED: 6/22/2015 9:58:08 AM  
NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_DEMO PLANS NORTH.DWG



**NOTES:**  
 1. \*INDICATES UTILITY LINES TO BE RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS TO HAVE RESPECTIVE UTILITIES RELOCATED AS NEEDED TO NOT INTERFERE WITH CONTRACTOR'S SCHEDULE. COST OF COORDINATION TO BE INCLUDED IN THE WORK. AS LISTED IN THE PROJECT SPECIFICATIONS, IN SOME CASES CONTRACTOR SHALL PROVIDE SURVEY INFORMATION FOR PROPOSED PROJECT IMPROVEMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF ENCOUNTERED ABANDONED UTILITIES. THIS SHALL BE PAID FOR AS REMOVAL OF ABANDONED UTILITY.

Sanitary MH Rim El=5354.08  
 8" PVC North Inv. El=5341.69  
 8" PVC West Inv. El=5341.66  
 8" PVC East Inv. El=5341.57  
 8" PVC South Inv. El=5341.49

Storm Sewer MH  
 Rim El=5356.60  
 Invert In (N) Box Culvert El=5340.59  
 Invert Out (S) Box Culvert El=5340.38

Computer File Information	
Creation Date: 11/10/14	Initials: JHK
Last Modification Date: 06/18/15	Initials: JHK
Full Path: P:\11-039.03\CAD	
Drawing File Name: 11-039.03_DEMO PLANS NORTH.dwg	
AutoCAD 2014	Scale: AS SHOWN

**MULLER ENGINEERING CO., INC.**  
 CONSULTING ENGINEERS  
 777 S. WADSWORTH BLVD., 4-100  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939

**MULLER**

MEC PROJECT NO. 11039.03



Sheet Revisions		
Date:	Comments	Init.

As Constructed	
No Revisions:	
Revised:	
Void:	

WONDERLAND CREEK - GREENWAYS IMPROVEMENT PROJECT			
<b>DEMOLITION AND REMOVAL PLAN</b>			
Designer:	MKN	Structure	
Detailer:	JHK	Numbers	
Sheet Subset:	DEMO	Subset Sheets:	DM-14

Project No./Code	
STM 110-081	
18405	
Sheet Number:	94

PLOTTED: 6/19/2015 10:27:56 AM  
 NAME: P:\11-039.03 WONDERLAND CREEK LOWER REACH - FINAL DESIGN\CAD\11-039.03\_DEMO PLANS NORTH.DWG