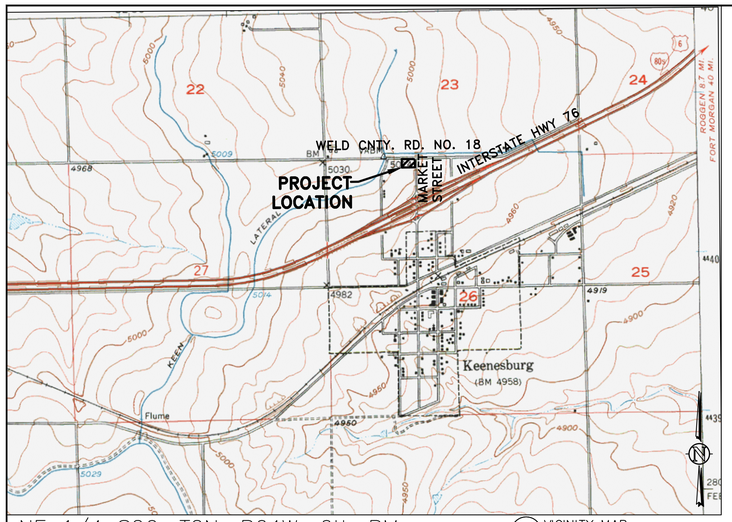

NE 1/4 S26, T2N, R64W, 6th PM
SHOWN VICINITY MAP TAKEN FROM USGS QUAD – KEENESBURG 40104–A5

VICINITY MAP
1" = 1,000'

LEGAL DESCRIPTION

LOT 2 OF MARKET STREET BUSINESS PARK SUBDIVISION
PART OF THE NORTHWEST 1/4 OF SECTION 26, TOWNSHIP 2 NORTH, RANGE 64 WEST OF THE 6TH P.M., TOWN OF KEENESBURG, COUNTY OF WELD, STATE OF COLORADO

BASIS OF BEARING & PROJECT BENCHMARK

BASIS OF BEARING: THE NORTH LINE OF THE NORTHWEST 1/4 OF SECTION 26, TOWNSHIP 2 NORTH, RANGE 64 WEST OF THE 6TH P.M., IN WELD COUNTY, COLORADO IS ASSUMED TO BEAR SOUTH 89°59'30" EAST, AS MONUMENTED HEREON, WITH ALL BEARINGS CONTAINED HEREON RELATIVE THERETO.

PROJECT BENCHMARK: COLORADO DEPARTMENT OF TRANSPORTATION CONTROL POINT "CP 3892 / MP 38.92" 3 1/4" ALUMINUM CAP IN THE WEST CENTER MEDIAN OF INTERSTATE 76 AT KEENSBURG EXIT. ELEVATION 1525.646 METERS OR 5005.40 FEET (NAVD 1988).

SITE BENCHMARK: WAS ESTABLISHED BEING A 3" BRASS CAP IN CONCRETE LYING FIVE FEET WEST OF A CONCRETE IRRIGATION DITCH NEAR THE INTERSECTION OF COUNTY ROAD 18 AND NORTH CEDAR STREET, AND THIRTY FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 18. STAMPED "NATIONAL GEODETIC SURVEY ACD 1" HAVING AN ELEVATION OF 5015.39 FEET (NAVD 1988)

REVISIONS	SHEET	INDEX:
0	1	COVER SHEET
0	2	EXISTING CONDITIONS & DEMO PLAN
0	3	EXISTING CONDITIONS & DEMO PLAN W/ AERIAL
0	4	HORIZONTAL CONTROL PLAN
0	5	SITE PLAN
0	6	VEHICLE TRACKING – FIRE
0	7	VEHICLE TRACKING – GARBAGE
0	8	UTILITY PLAN
0	9	WATERLINE SERVICE DETAILS
0	10	SANITARY SERVICE PLAN & PROFILE
0	11	FIRE HYDRANT PLAN & PROFILE
0	12	GRADING PLAN
0	13	GRADING DETAILS
0	14	FINAL DRAINAGE PLAN
0	15	TOWN OF KEENESBURG DETAILS
0	16	CDOT DETAILS
0	17	CDOT DETAILS
0	18	INITIAL GESC PLAN
0	19	INTERIM GESC PLAN
0	20	FINAL GESC PLAN
0	21	GESC DETAILS
0	22	GESC DETAILS
0	23	GESC DETAILS
0	24	GESC DETAILS
0	25	GESC DETAILS
0	26	LANDSCAPE PLAN
0	27	LANDSCAPE DETAILS
0	28	BUILDING RENDERINGS
0	PH1	PHOTOMETRIC PLAN
0	PH2	PHOTOMETRIC DETAILS

SITE PLAN FOR:

HIGH PLAINS BANK - LOT 2 MARKET STREET BUSINESS PARK WELD CNTY RD 18 & MARKET ST KEENESBURG, CO

PREPARED FOR:

DBSI+CFM
BRIAN SILVESTER
6950 W MORELOS PL
CHANDLER, AZ 85226
(602)264-7263 ext.233

APPROVED BY:

DBSI DATE
BRIAN SILVESTER

COLORADO REGISTERED PROFESSIONAL ENGINEER
CHADWIN F. COX
33802
APPROVAL
06/25/21
PROFESSIONAL ENGINEER

WESTERN ENGINEERING CONSULTANTS, INC, LLC
CHADWIN F. COX, P.E.

0	**INITIAL RELEASE FOR REVIEW:**	**JUNE 25, 2021**

TOWN OF KEENESBURG APPROVAL

THESE DRAWINGS FOR HIGH PLAINS BANK - LOT 2 MARKET STREET BUSINESS PARK HAVE BEEN REVIEWED BY THE TOWN OF KEENESBURG AND ARE APPROVED FOR CONSTRUCTION.

MAYOR DATE

ATTEST: TOWN CLERK DATE

TOWN ENGINEER DATE

OWNER			
HIGH PLAINS BANK CONTACT: SAM CREIGHTON (915)207-6871			
DEVELOPER	TOWN	FIRE DISTRICT	ELECTRIC UTILITY
DBSI+CFM CONTACT: BRIAN SILVESTER 6950 W MORELOS PL CHANDLER, AZ 85226 (602)264-7263	TOWN OF KEENESBURG CONTACT: TODD HODGES 140 S. MAIN STREET KEENESBURG, CO 80643 PHONE: (303)732-4281	SOUTHEAST WELD FIRE PROTECTION DISTRICT CONTACT: THOMAS BEACH 65 E. GANDY AVENUE KEENESBURG, CO 80643 PHONE: (303) 732-4203	UNITED POWER BRIGHTON HEADQUARTERS OFFICE 500 COOPERATIVE WAY BRIGHTON, CO 80603 (303)637-1300

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Utility Notification Center of Colorado
Administrative Office
16361 Table Mountain Parkway
Golden, Colorado 80403
Office: 303-232-1991 Fax: 303-234-1712
Toll-Free 1-800-922-1987

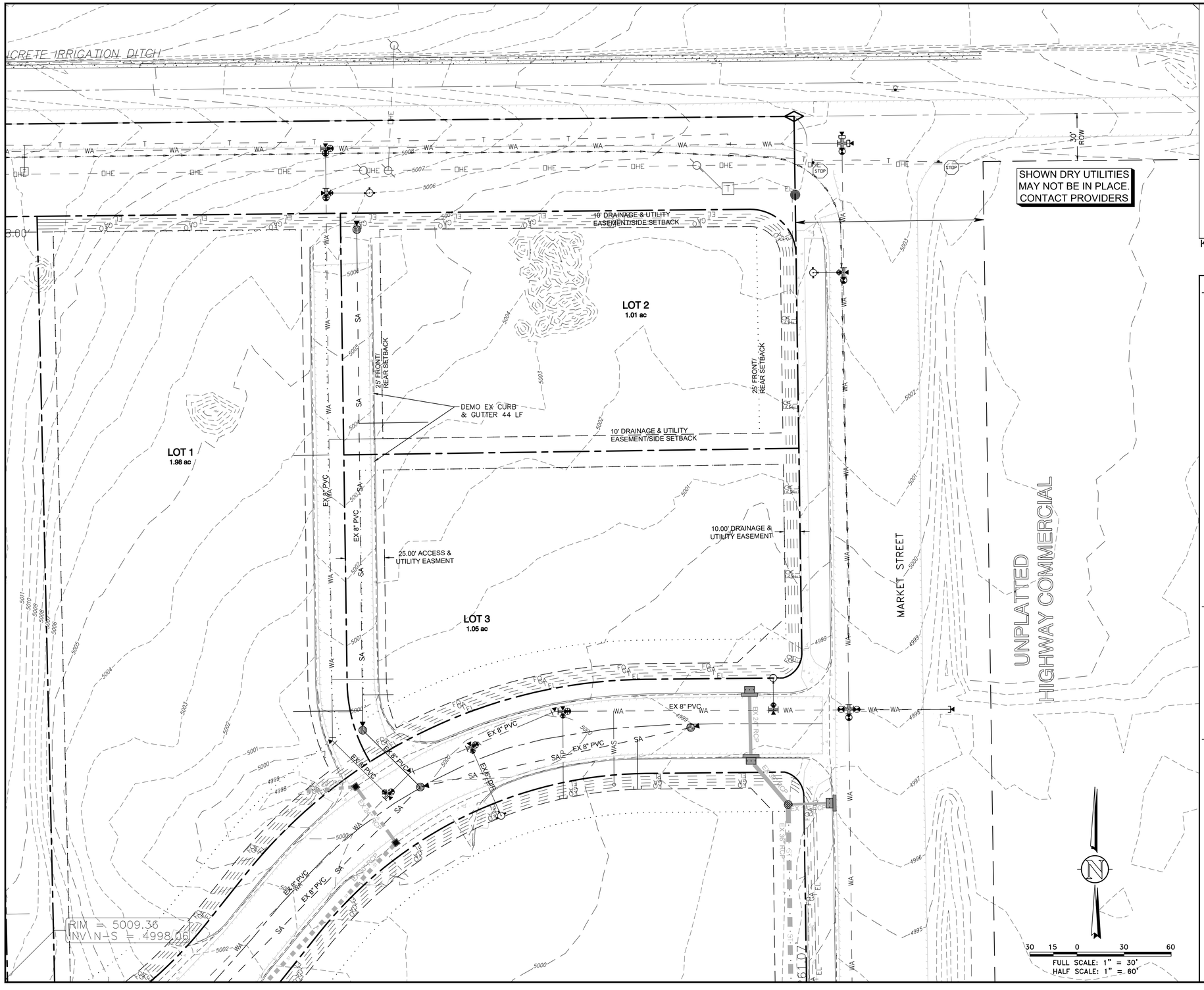
CALL 2–BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

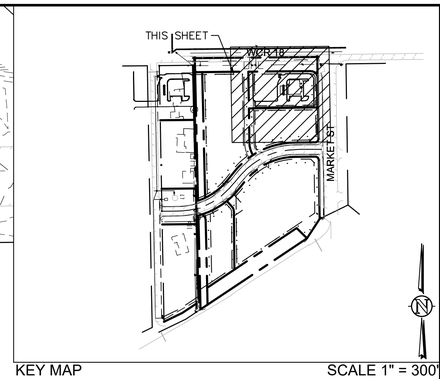
PREPARED BY:

Western Engineering Consultants, inc. LLC

WESTERN ENGINEERING CONSULTANTS, inc. LLC
127 SOUTH DENVER AVE, FORT LUPTON CO 80621
720-685-9951 PH, 720-294-1330 FAX, email@westerneci.com

PROJECT NO: 00–0355–002–00
INITIAL PLAN RELEASE: June 25, 2021
SHEET: **1 of 28**





KEY MAP SCALE 1" = 300'

NOTES

THIS PLAN IS INTENDED AS THE EXISTING CONDITIONS AND DEMO PLAN PLAN FOR MARKET ST BUSINESS PARK – LOT 2.

ALL IMPROVEMENTS ARE EXISTING UNLESS NOTED AS PROPOSED.

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SEE "AS BUILT/BOUNDARY SURVEY" COMPLETED BY AMERICAN WEST LAND SURVEY – DATED MAY 24, 2006, UPDATED TOPOGRAPHY AND IMPROVEMENTS SURVEY DATED AUGUST 07, 2019, FINAL PLAT DATED AUGUST 14, 2020, MACY ENTERPRISES AS–BUILTS, AND AS CONSTRUCTED CONDITIONS DRONE AERIAL SURVEY BY AMERICAN WEST LAND SURVEY AND WESTERN ENGINEERING CONSULTANTS DATED APRIL 13, 2021.

SEE COVER SHEET FOR PROJECT BASIS OF BEARING & LEGAL DESCRIPTION.

SITE BENCHMARK WAS ESTABLISHED BEING A 3" BRASS CAP IN CONCRETE LYING FIVE FEET WEST OF A CONCRETE IRRIGATION DITCH NEAR THE INTESECTION OF COUNTY ROAD 18 AND NORTH CEDAR STREET, AND THIRTY FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 18. STAMPED "NATIONAL GEODETIC SURVEY ACD 1" HAVING AND ELEVATION OF 5015.39 FEET (NAVD 1988)

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BUILDING SETBACKS FRONT/REAK = 25', SIDES = 10' PER ZONE DISTRICT HIGHWAY COMMERCIAL (CH)

SYMBOL LEGEND

45 DEG BEND		THRUST BLOCK	TB
22.5 DEG BEND		GATE VALVE	GV
RESTRAINED PLUG		CURB STOP	
RESTRAINED TEE		PIPE CROSSING	
WATER METER		MANHOLE	
RESTRAINED CROSS		MANHOLE W/ FLOW DIRECTION	
FIRE HYDRANT		RD ROOF DRAIN	
RESTRAINED VALVE		PROPOSED GRAVEL	
EXISTING CONC		PROPOSED CONC	
EXISTING ASPHALT		PROPOSED ASPHALT	

LINETYPE LEGEND

	LOT / PROPERTY / SECTION LINE
	RIGHT OF WAY LINE
	EASEMENT
	SETBACK
	TO BE ABANDONED LOT LINE
	EXISTING BUILDING, CURB
	EDGE of ASPHALT or GRAVEL RD
	CHAINLINK FENCE
	WIRE FENCE
	POND WQ W/S
	SWALE
OHE	EXISTING OVERHEAD ELEC
EL	EXISTING ELECTRICAL LINE
ST	EXISTING STORM LINE
SA	EXISTING SANITARY LINE
WA	EXISTING WATER LINE
GA	EXISTING GAS LINE
FO	EXISTING FIBER OPTIC LINE
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FAX (720) 294-1330
Western Engineering Consultants, inc LLC

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DBSI + CF M
CONTACT: BRIAN SILVESTER
6950 W. MOELLER DR.
CHANDLER, AZ 85226
(602)264-7263 ext. 233

EX. COND. & DEMO PLAN MARKET STREET BUSINESS PARK SUBDIVISION - LOT 2

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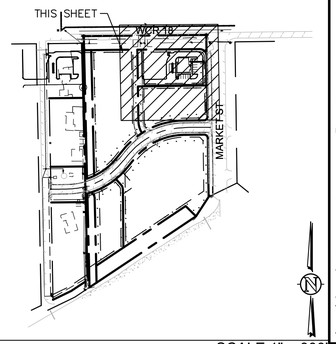
CHECKED BY: CFC
PROJECT NO. 01-0355.001.02
DOC CON # 0002-EXCON
SHEET 2 OF 28



KEY MAP SCALE 1" = 300'

NOTES

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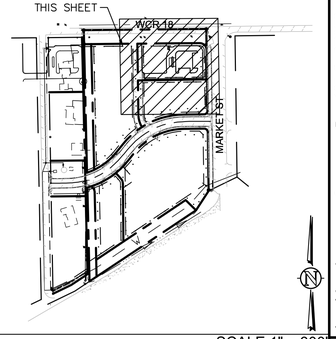
CHECKED BY: CFC
PROJECT NO. 01-0355.001.02
DOC CON # 0003-EXCON AE
SHEET 3 OF 28

PROPERTY LINE CURVE TABLE					
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C19	45.42	29.00	89°44'06"	S45°41'44"E	40.92

PROPERTY CORNER POINT TABLE		
DESCRIPTION	NORTHING	EASTING
PC–NE–1	1287155.3105	3274551.5869
PC–NE–2	1287126.7311	3274580.8690
PC–NW	1287152.7443	3274290.5088
PC–SE	1287002.9618	3274582.6580
PC–SW	1286998.7712	3274292.7345

PROPERTY LINE TABLE		
LINE #	BEARING	DISTANCE
L24	S89°10'19"W	289.93
L25	N00°49'41"W	153.99
L26	N89°26'13"E	261.09
L27	S00°49'10"E	123.78



KEY MAP SCALE 1" = 300'

LINE TABLE		
LINE #	BEARING	DISTANCE
L1	N89°10'19"E	244.65
L2	N00°49'16"W	108.81
L3	S89°26'13"W	86.17
L4	S89°10'19"W	19.43
L5	S00°49'41"E	10.19
L6	N89°10'19"E	6.50
L7	S00°49'41"E	54.09
L8	S89°10'19"W	86.46
L9	N00°47'36"W	114.90
L10	N00°48'20"W	70.18
L11	N89°26'13"E	69.65
L12	S00°35'48"E	0.34
L13	S89°10'40"W	18.00
L14	S00°49'20"E	65.00
L15	N89°10'40"E	18.00
L16	S00°49'20"E	1.00
L17	S89°09'41"W	12.22
L18	N00°49'41"W	18.00
L19	S89°10'19"W	50.00
L20	S00°49'41"E	18.00
L21	S89°10'26"W	3.00
L22	N00°47'31"W	36.00
L23	S00°47'31"E	36.00

CURVE TABLE					
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	15.71	10.00	90°02'03"	N44°09'17"E	14.15
C2	44.68	28.50	89°49'52"	N45°38'51"W	40.25
C3	7.22	10.12	40°52'47"	S68°43'55"W	7.07
C4	7.22	10.12	40°52'47"	S68°43'55"W	7.07
C5	4.63	2.00	132°30'14"	S24°32'47"E	3.66
C6	40.83	55.00	42°32'02"	S20°26'19"W	39.90
C7	7.07	4.50	90°00'00"	S44°10'19"W	6.36
C8	15.71	10.00	90°00'00"	N45°49'41"W	14.14
C9	23.63	15.00	90°15'54"	N44°18'16"E	21.26
C10	7.07	4.50	89°57'58"	S45°34'48"E	6.36
C11	3.14	2.00	90°00'00"	S44°10'40"W	2.83
C12	3.14	2.00	90°00'00"	S45°49'20"E	2.83
C13	23.56	15.00	89°59'31"	S44°10'26"W	21.21
C14	3.14	2.00	90°00'38"	N45°50'00"W	2.83
C15	3.14	2.00	90°00'07"	S44°10'22"W	2.83
C16	7.85	5.00	90°00'07"	N45°49'45"W	7.07
C17	6.28	2.00	180°00'05"	S89°12'27"W	4.00
C18	6.28	2.00	180°00'00"	N89°12'29"E	4.00

BUILDING POINT TABLE		
DESCRIPTION	NORTHING	EASTING
BLDG–01	1287057.6525	3274457.1364
BLDG–02	1287058.4042	3274509.1326
BLDG–03	1287067.7959	3274508.9966
BLDG–04	1287068.0378	3274514.1979
BLDG–05	1287082.3696	3274513.9907
BLDG–06	1287082.3377	3274511.7784
BLDG–07	1287090.5272	3274511.6600
BLDG–08	1287090.4454	3274505.9982
BLDG–09	1287118.3594	3274505.5947
BLDG–10	1287117.7405	3274462.7765
BLDG–11	1287094.9926	3274463.1054
BLDG–12	1287094.8985	3274456.5980

UTILITIES POINT TABLE		
DESCRIPTION	NORTHING	EASTING
EL–01	1287142.2002	3274434.8309
EL–02	1287117.7405	3274462.7765
FO–01	1287145.6285	3274463.7806
FO–02	1287117.7608	3274464.1834
FP–01	1287195.3483	3274407.6237
FP–02	1287088.0979	3274409.1741
SS–01	1287019.2603	3274326.4292
SS–02	1287019.5493	3274346.4272
SS–03	1287020.5719	3274417.1691
SS–04	1287059.6234	3274455.1077
SS–05	1287059.6523	3274457.1075
T–01	1287149.6670	3274468.7227
T–02	1287117.8331	3274469.1829
WAS–01	1287009.2710	3274327.2451
WAS–02	1287011.2013	3274460.7909
WAS–03	1287032.6987	3274460.4802
WAS–04	1287057.6957	3274460.1189

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HORIZONTAL CONTROL PLAN
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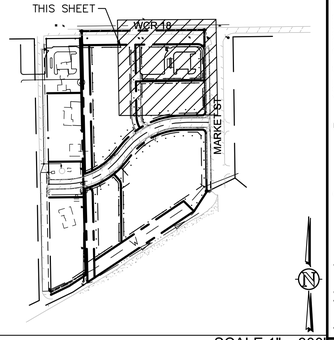
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01–0355.001.02
DOC CON # 0004–HZ CTRL
SHEET 4 OF 28

FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	25.00'
REAR	25.00'
SIDE*	10.00'



KEY MAP SCALE 1" = 300'

UNPLATTED
UNINCORPORATED WELD COUNTY

WELD COUNTY ROAD 18

513.73'(M) 514'+/-(R)

EX 25' ASPHALT

OHE

N89°26'13"E 2638.80' (BASIS OF BEARINGS)

59' RIGHT-OF-WAY DEDICATED FOR COUNTY ROAD 18 BY MARKET STREET BUSINESS PARK PLAT REC NO. 4641087, DATED OCT. 16, 2020. N89°26'13"E 484.36'

87.8'

STOP

120' ROW

289.93'

10' DRAINAGE & UTILITY EASEMENT/SIDE SETBACK

SPILL CURB (TYP.)

24.00'

DEPRESSED CURB

CDOT TYPE 1 RAMP

CDOT TYPE 2 RAMP

LOT 2
1.01 ac

ENTRY

HIGH PLAINS BANK
2,997 SF

24.51'

12.00'

SPILL CURB (TYP.)

20.00'

10.00'

20.00'

10.00'

12' FRONT/ REAR SETBACK

CDOT TYPE 2 RAMP

CDOT TYPE 2 RAMP

25' FRONT/ REAR SETBACK

24.00'

SWALE 2E

123.78'

153.99'

10' DRAINAGE & UTILITY EASEMENT/SIDE SETBACK

SWALE 2S

BARRIER CURB SEE DETAIL SHEET 16

289.93'

START SWALE 2S

5.00'

LOT 1
1.98 ac

LOT 3
1.05 ac

25.00' ACCESS & UTILITY EASMENT

10.00' DRAINAGE & UTILITY EASEMENT

SWALE 2S

MARKET STREET

(M) 679.0'+/-(R)

20 10 0 20 40
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

LOT DATA TABLE				
DESCRIPTION	AREA	AREA (ac)	EXISITNG %	PROPOSED %
LOT	44,276 SF	1.02	100 %	100 %
PROPOSED BUILDINGS	2,997 SF	0.07	6.77 %	
TOTAL BUILDINGS	**2,997 SF**	**0.07**		**6.77 %**
PROPOSED CONCRETE	3,703 SF	0.09	8.36 %	
EX CONCRETE TO BE REMOVED	100 SF	0.00	0.23 %	
TOTAL CONCRETE	**3,603 SF**	**0.08**		**8.14 %**
PROPOSED ASPHALT	15,665 SF	0.36	35.38 %	
EX ASPHALT TO BE REMOVED	0 SF	0.00	0.00 %	
TOTAL ASPHALT	**15,665 SF**	**0.36**		**35.38 %**
EX GRAVEL TBR/REGRADED	0 SF	0.00	0.00 %	
PROPOSED GRAVEL	0 SF	0.00		0.00 %
TOTAL GRAVEL	**0 SF**	**0.00**		**0.00 %**
EXISTING LANDSCAPE AREA	38,954 SF	0.89	87.98 %	
PROPOSED LANDSCAPE AREA	**22,010 SF**	**0.51**		**49.71 %**

NOTES

THIS PLAN IS INTENDED AS THE SITE PLAN FOR HIGH PLAINS BANK – LOT 2 MARKET ST BUSINESS PARK.

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BUILDING SETBACKS FRONT/REAR = 25', SIDES = 10' PER ZONE DISTRICT HIGHWAY COMMERCIAL (CH)

SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED VALVE
- THRUST BLOCK TB
- GATE VALVE GV
- CURB STOP
- PIPE CROSSING
- MANHOLE
- MANHOLE W/ FLOW DIRECTION
- RD ROOF DRAIN
- PROPOSED GRAVEL
- EXISTING CONC
- PROPOSED CONC
- EXISTING ASPHALT
- PROPOSED ASPHALT

LINETYPE LEGEND

- LOT / PROPERTY / SECTION LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- OHE EXISTING OVERHEAD ELEC
- EL EXISTING ELECTRICAL LINE
- ST EXISTING STORM LINE
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DBSI + CFM
CONTACT: BRIAN SILVESTER
6950 W MOELLER RD
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SITE PLAN
MARKET STREET BUSINESS PARK SUBDIVISION - LOT 2
TOWN of KEENESBURG, WELD COUNTY, COLORADO

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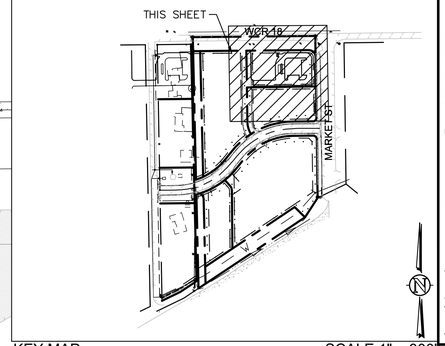
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01–0355.001.02
DOC CON # 0005–FUT SITE
SHEET 5 OF 28

FIRE TRACK

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	25.00'
REAR	25.00'
SIDE*	10.00'



UNPLATTED
UNINCORPORATED WELD COUNTY

WELD COUNTY ROAD 18

513.73'(M) 514'+/-(R)

EX 25' ASPHALT

N89°26'13"E 2638.80' (BASIS OF BEARINGS)

OHE

EX FH #1

59' RIGHT-OF-WAY DEDICATED FOR COUNTY ROAD 18 BY MARKET STREET BUSINESS PARK PLAT REC NO. 4641087, DATED OCT. 16, 2020. N89°26'13"E 484.36'

87.8'

STOP

289.93'

10' DRAINAGE & UTILITY EASEMENT/SIDE SETBACK

SPILL CURB (TYP.)

24.00'

120' ROW

EX FH #2

CDOT TYPE 1 RAMP

CDOT TYPE 2 RAMP

LOT 2
1.01 ac

ENTRY

FH 2A

24.5'

12.00'

2.00'

HIGH PLAINS BANK
2,997 SF

20.00'

10.00'

20.00'

153.99'

12' FRONT/ REAR SETBACK

CDOT TYPE 2 RAMP

25' FRONT/ REAR SETBACK

SWALE 2E

123.78'

10' DRAINAGE & UTILITY EASEMENT/SIDE SETBACK

SWALE 2S

289.93'

BARRIER CURB SEE DETAIL SHEET 16

START SWALE 2S

5.00'

LOT 1
1.98 ac

LOT 3
1.05 ac

25.00' ACCESS & UTILITY EASEMENT

10.00' DRAINAGE & UTILITY EASEMENT

SWALE 2S

MARKET STREET

(M) 679.0'+/-(R)

20 10 0 20 40
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

LOT DATA TABLE				
DESCRIPTION	AREA	AREA (ac)	EXISITNG %	PROPOSED %
LOT	44,276 SF	1.02	100 %	100 %
PROPOSED BUILDINGS	2,997 SF	0.07	6.77 %	
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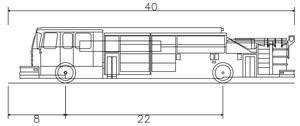

Pumper Fire Truck

Overall Length	40.000ft
Overall Width	8.167ft
Overall Body Height	7.745ft
Min Body Ground Clearance	0.656ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

SE WELD COUNTY TEMPLATE

NOTES

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LINETYPE LEGEND

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VEHICLE TRACKING - FIRE
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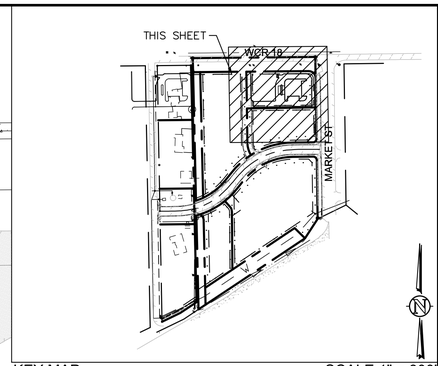
CHECKED BY: CFC
PROJECT NO. 01-0355.001.02
DOC CON # 0006-VTC FIRE
SHEET 6 OF 28

GARBAGE TRACK

SETBACK DATA TABLE	
PROPERTY LINE	BUILDING SETBACK
FRONT	25.00'
REAR	25.00'
SIDE*	10.00'



KEY MAP SCALE 1" = 300'

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UNINCORPORATED WELD COUNTY

WELD COUNTY ROAD 18

513.73'(M) 514'+/-(R)

EX 25' ASPHALT

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87.8'

STOP

120' ROW

289.93'

10' DRAINAGE & UTILITY EASEMENT/SIDE SETBACK

SPILL CURB (TYP.)

24.00'

CDOT TYPE 2 RAMP

CDOT TYPE 1 RAMP

LOT 2
1.01 ac

ENTRY

HIGH PLAINS BANK
2,997 SF

24.51'

12.00'

SPILL CURB (TYP.)

20.00'

10.00'

153.99'

12' FRONT/ REAR SETBACK

CDOT TYPE 2 RAMP

SWALE 2E

123.78'

25' FRONT/ REAR SETBACK

10' DRAINAGE & UTILITY EASEMENT/SIDE SETBACK

SWALE 2S

289.93'

BARRIER CURB SEE DETAIL SHEET 16

START SWALE 2S

5.00'

LOT 1
1.98 ac

LOT 3
1.05 ac

25.00' ACCESS & UTILITY EASEMENT

10.00' DRAINAGE & UTILITY EASEMENT

SWALE 2S

MARKET STREET

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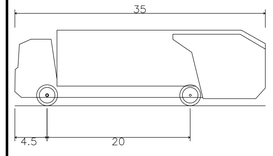

Front-Load Garbage Truck	
Overall Length	35.000ft
Overall Width	8.375ft
Overall Body Height	10.546ft
Min Body Ground Clearance	1.000ft
Track Width	8.375ft
Lock-to-lock time	6.00sl
Curb to Curb Turning Radius	29.300ft

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20 10 0 20 40
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

NOTES

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- 22.5 DEG BEND
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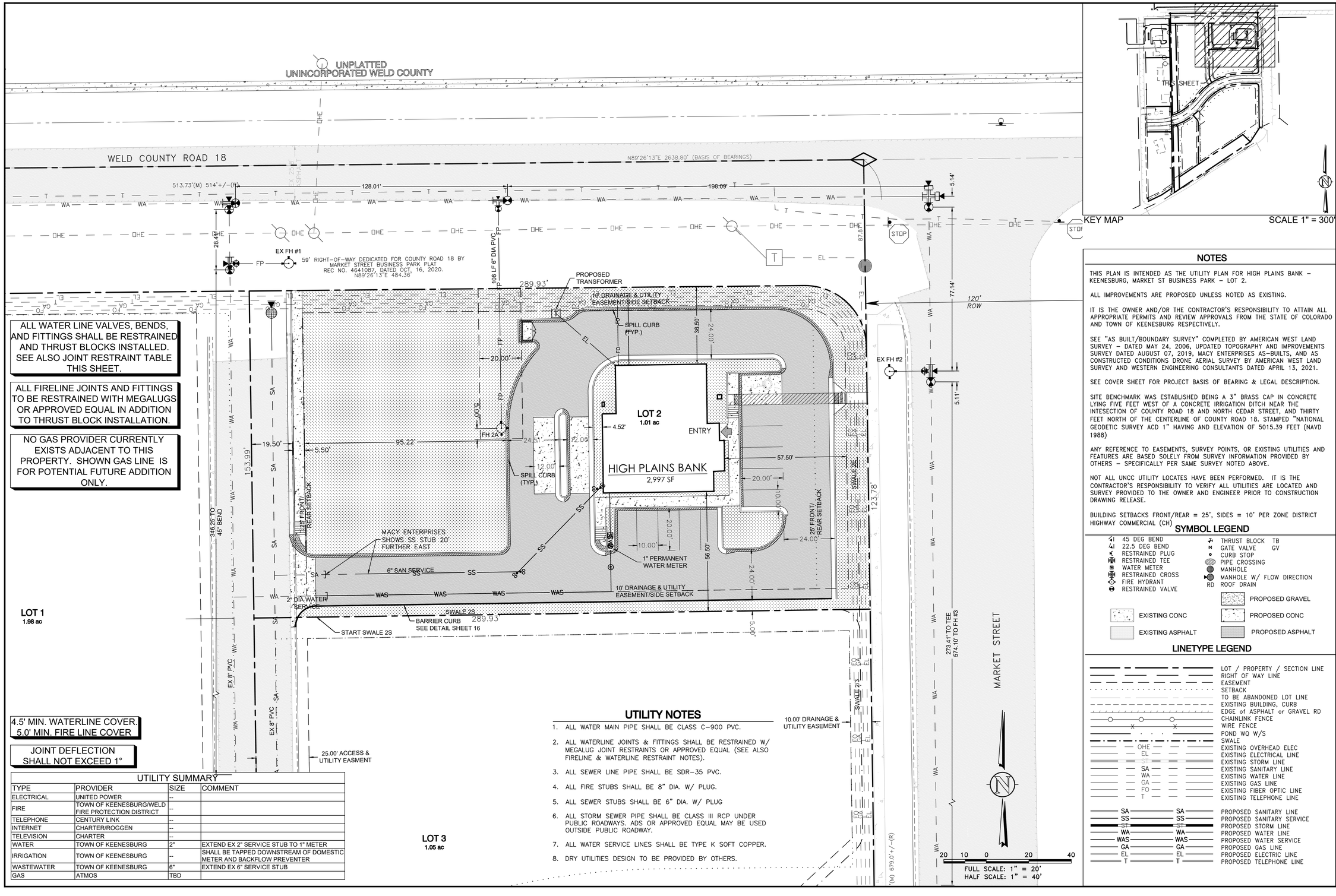
SHEET 7 OF 28



ALL WATER LINE VALVES, BENDS, AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCKS INSTALLED. SEE ALSO JOINT RESTRAINT TABLE THIS SHEET.

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCK INSTALLATION.

NO GAS PROVIDER CURRENTLY EXISTS ADJACENT TO THIS PROPERTY. SHOWN GAS LINE IS FOR POTENTIAL FUTURE ADDITION ONLY.

4.5' MIN. WATERLINE COVER.
5.0' MIN. FIRE LINE COVER

JOINT DEFLECTION SHALL NOT EXCEED 1°

UTILITY SUMMARY

TYPE	PROVIDER	SIZE	COMMENT
ELECTRICAL	UNITED POWER	--	
FIRE	TOWN OF KEENESBURG/WELD FIRE PROTECTION DISTRICT	--	
TELEPHONE	CENTURY LINK	--	
INTERNET	CHARTER/ROGGEN	--	
TELEVISION	CHARTER	--	
WATER	TOWN OF KEENESBURG	2"	EXTEND EX 2" SERVICE STUB TO 1" METER
IRRIGATION	TOWN OF KEENESBURG	--	SHALL BE TAPPED DOWNSTREAM OF DOMESTIC METER AND BACKFLOW PREVENTER
WASTEWATER	TOWN OF KEENESBURG	6"	EXTEND EX 6" SERVICE STUB
GAS	ATMOS	TBD	

UTILITY NOTES

1. ALL WATER MAIN PIPE SHALL BE CLASS C-900 PVC.
2. ALL WATERLINE JOINTS & FITTINGS SHALL BE RESTRAINED W/ MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL (SEE ALSO FIRELINE & WATERLINE RESTRAINT NOTES).
3. ALL SEWER LINE PIPE SHALL BE SDR-35 PVC.
4. ALL FIRE STUBS SHALL BE 8" DIA. W/ PLUG.
5. ALL SEWER STUBS SHALL BE 6" DIA. W/ PLUG
6. ALL STORM SEWER PIPE SHALL BE CLASS III RCP UNDER PUBLIC ROADWAYS. ADS OR APPROVED EQUAL MAY BE USED OUTSIDE PUBLIC ROADWAY.
7. ALL WATER SERVICE LINES SHALL BE TYPE K SOFT COPPER.
8. DRY UTILITIES DESIGN TO BE PROVIDED BY OTHERS.

KEY MAP SCALE 1" = 300'

NOTES

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- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED VALVE
- THRUST BLOCK TB
- GATE VALVE GV
- CURB STOP
- PIPE CROSSING
- MANHOLE
- MANHOLE W/ FLOW DIRECTION
- RD ROOF DRAIN
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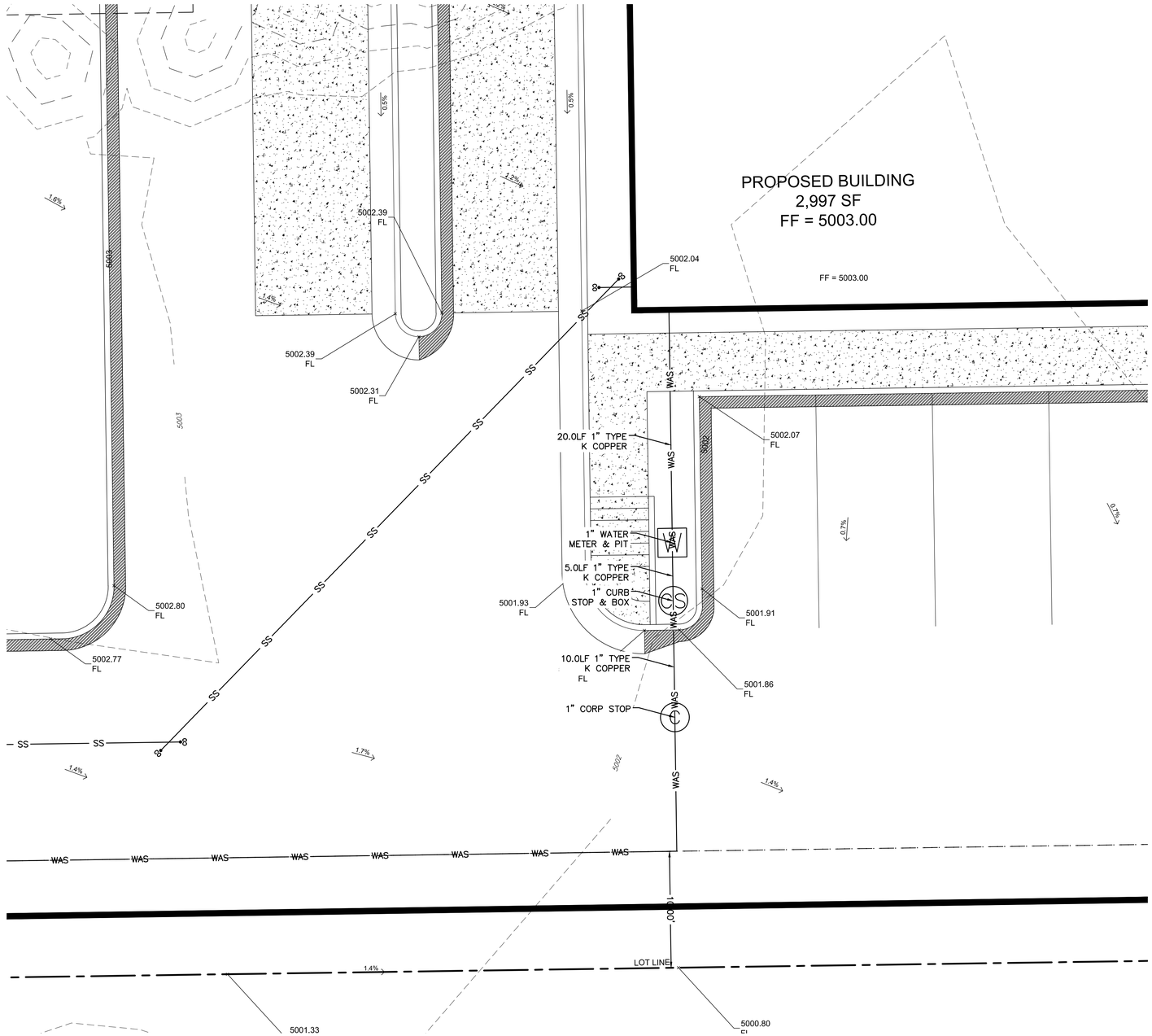

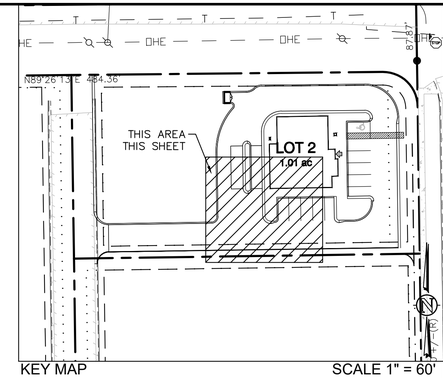

NOTES

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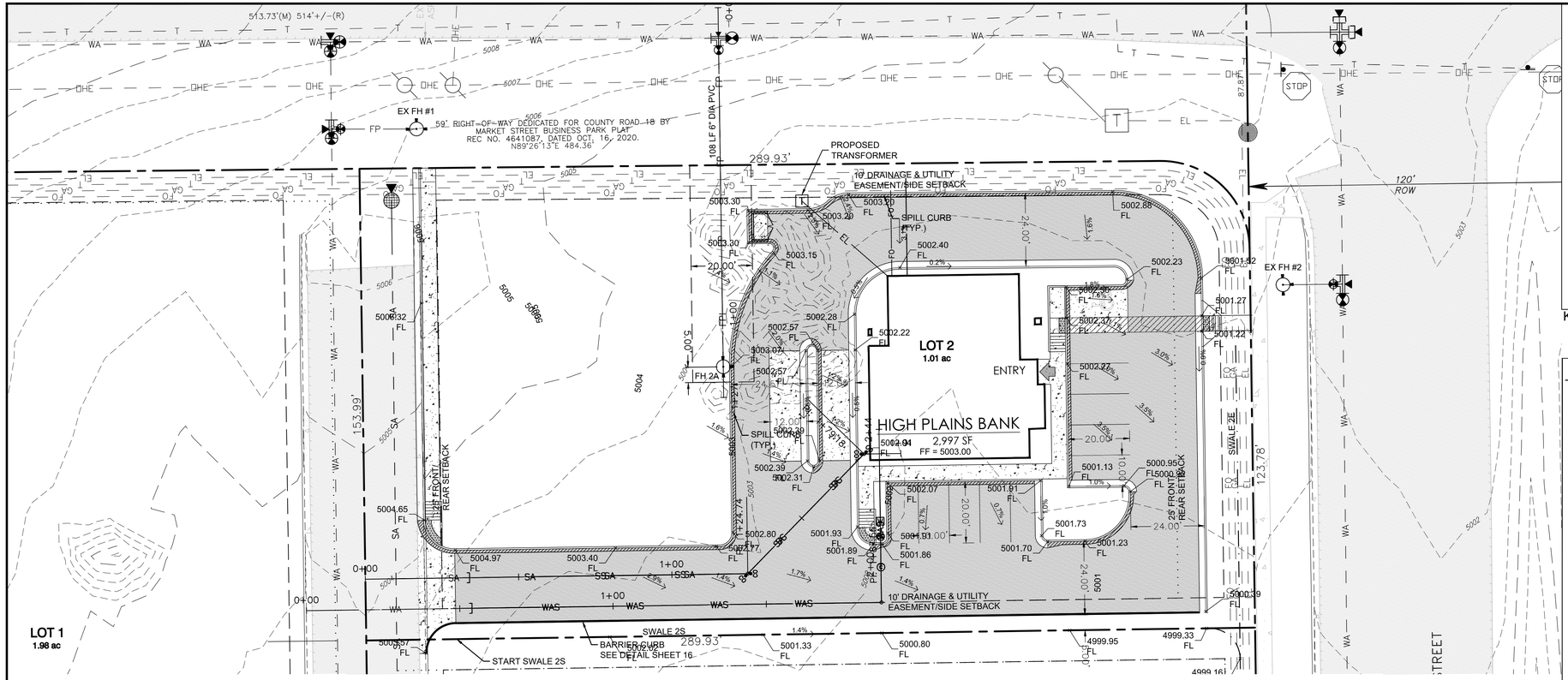

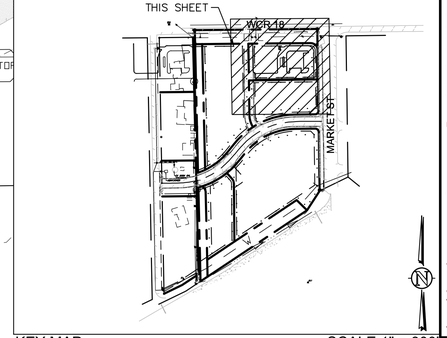

KEY MAP SCALE 1" = 300'

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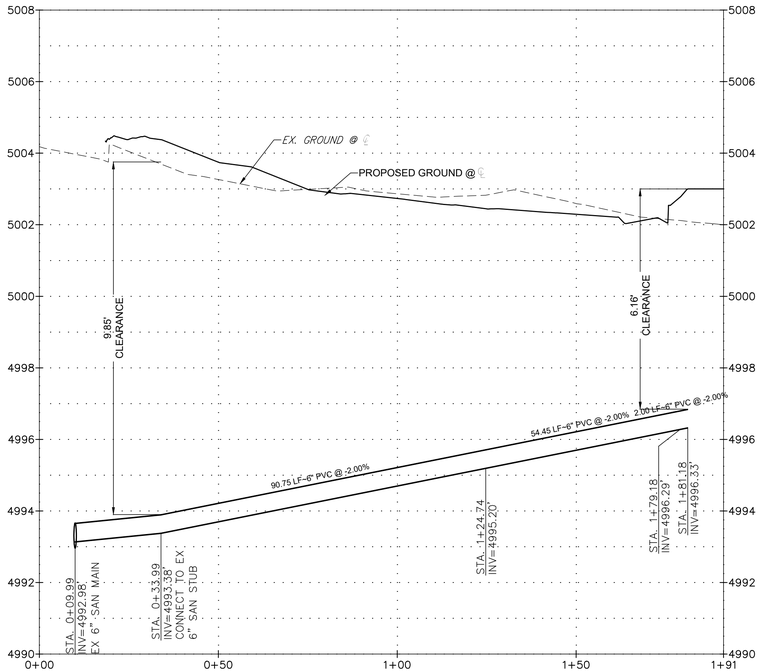

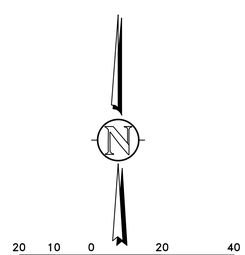

FULL HORIZONTAL SCALE: 1" = 20'
HALF HORIZONTAL SCALE: 1" = 40'
FULL VERTICAL SCALE: 1" = 2'
HALF VERTICAL SCALE: 1" = 4'

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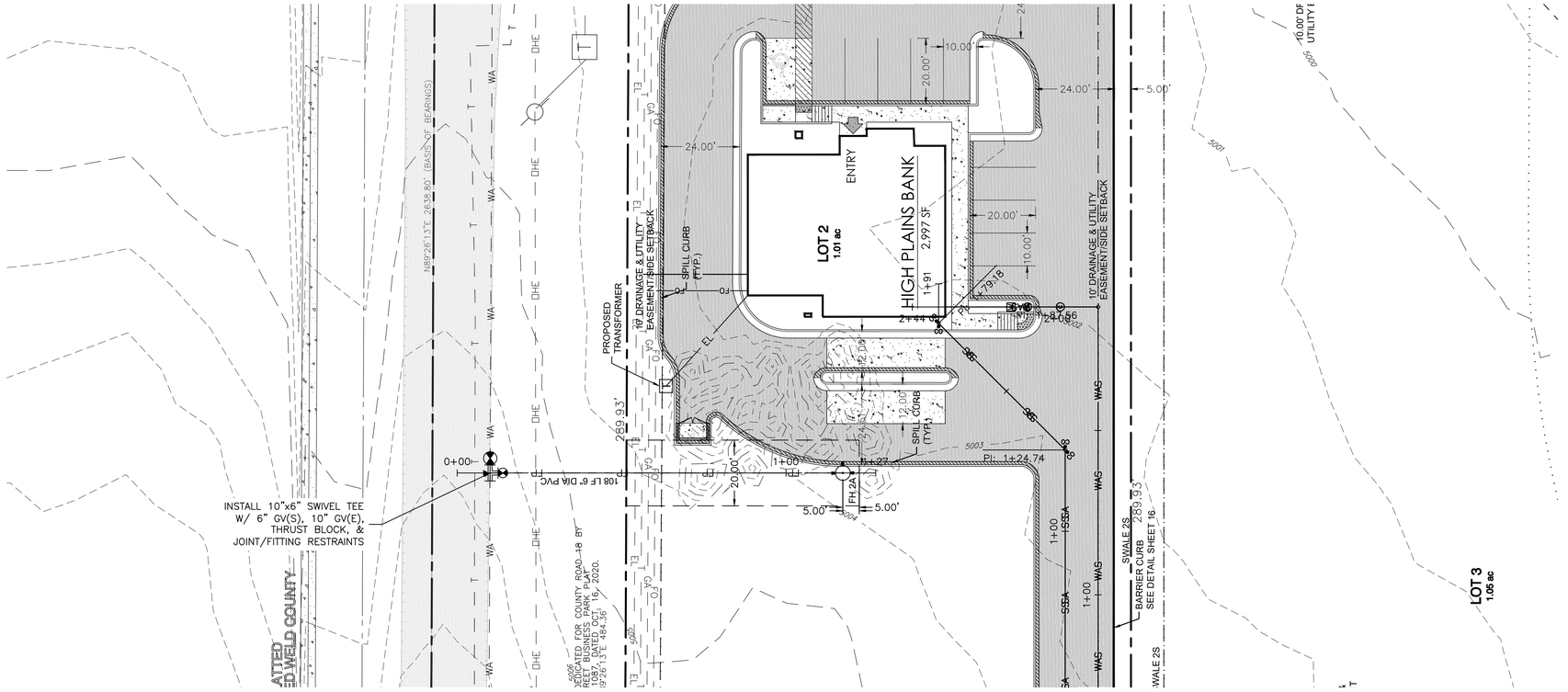

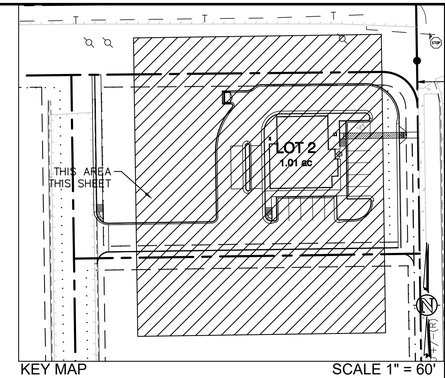

KEY MAP SCALE 1" = 60'

20 10 0 20 40

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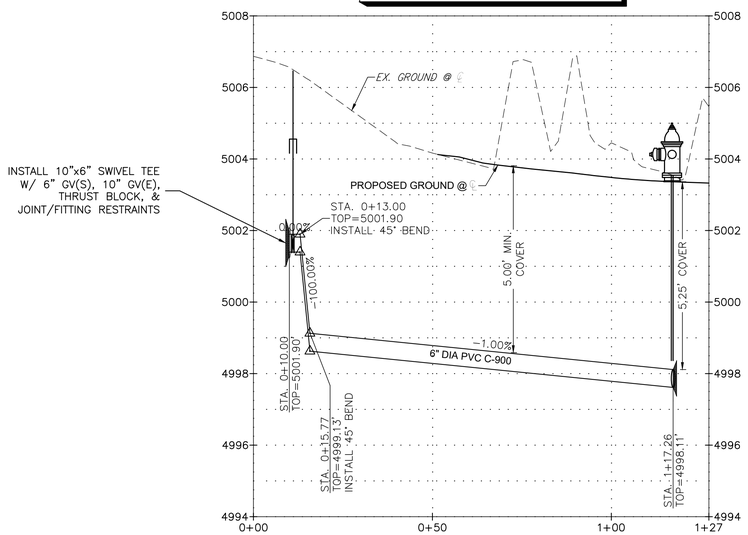
POTHOLE/CONNECTION NOTE

CONTRACTOR TO POTHOLE ALL CONNECTION POINTS 5 DAYS PRIOR TO CONSTRUCTION AND NOTIFY WESTERN ENGINEERING CONSULTANTS (WEC) OF ANY DISCREPANCIES FROM DESIGN.



4.5' MIN. WATERLINE COVER.
5.0' MIN. FIRE LINE COVER

JOINT DEFLECTION SHALL NOT EXCEED 1°

ALL WATER LINE VALVES, BENDS, AND FITTINGS SHALL BE RESTRAINED AND THRUST BLOCKS INSTALLED. SEE ALSO JOINT RESTRAINT TABLE THIS SHEET.

ALL FIRELINE JOINTS AND FITTINGS TO BE RESTRAINED WITH MEGALUGS OR APPROVED EQUAL IN ADDITION TO THRUST BLOCK INSTALLATION.

JOINT RESTRAINT TABLE

(Using Test pressure 200 psi, soil type Sandy Clay per Geotech Report)
All values below are feet in each direction unless otherwise noted

22.5	45	90	8"8 Tee	8"6 Tee	45 V bend	22.5 V bend	11.25 V bend	8"3 Reduction	Dead End
9	18	42	14	9	49 up, 12 lower	24 up, 6 lower	12 up, 3 lower	76	94

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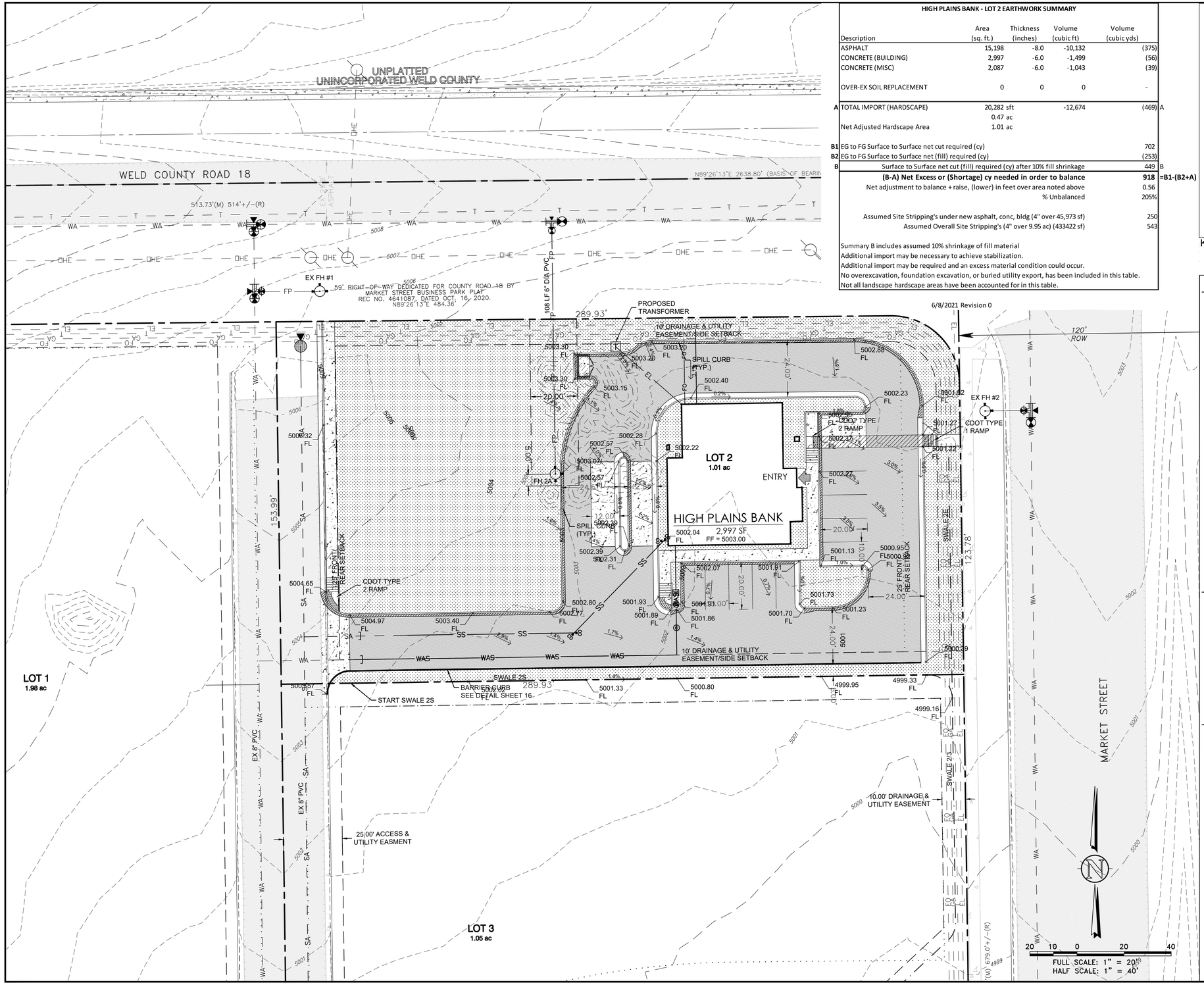
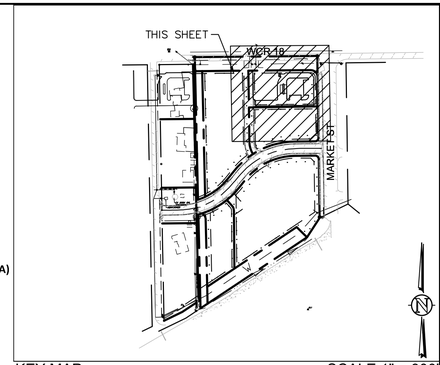


6/8/2021 Revision 0

HIGH PLAINS BANK - LOT 2 EARTHWORK SUMMARY

	Description	Area (sq. ft.)	Thickness (inches)	Volume (cubic ft)	Volume (cubic yds)	
	ASPHALT	15,198	-8.0	-10,132	(375)	
	CONCRETE (BUILDING)	2,997	-6.0	-1,499	(56)	
	CONCRETE (MISC)	2,087	-6.0	-1,043	(39)	
	OVER-EX SOIL REPLACEMENT	0	0	0	-	
A	TOTAL IMPORT (HARDSCAPE)	20,282 sft		-12,674	(469)	A
		0.47 ac				
	Net Adjusted Hardscape Area	1.01 ac				
B1	EG to FG Surface to Surface net cut required (cy)				702	
B2	EG to FG Surface to Surface net (fill) required (cy)				(253)	
B	Surface to Surface net cut (fill) required (cy) after 10% fill shrinkage				449	B
	(B-A) Net Excess or (Shortage) cy needed in order to balance				**918**	**=B1-(B2+A)**
	Net adjustment to balance + raise, (lower) in feet over area noted above				0.56	
	% Unbalanced				205%	
	Assumed Site Stripping's under new asphalt, conc, bldg (4" over 45,973 sf)				250	
	Assumed Overall Site Stripping's (4" over 9.95 ac) (433422 sf)				543	

Summary B includes assumed 10% shrinkage of fill material
Additional import may be necessary to achieve stabilization.
Additional import may be required and an excess material condition could occur.
No overexcavation, foundation excavation, or buried utility export, has been included in this table.
Not all landscape hardscape areas have been accounted for in this table.



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- PROPOSED SANITARY SERVICE
- PROPOSED STORM LINE
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED GAS LINE
- PROPOSED ELECTRIC LINE
- PROPOSED TELEPHONE LINE

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GRADING PLAN MARKET STREET BUSINESS PARK SUBDIVISION - LOT 2

TOWN of KEENESBURG, WELD COUNTY, COLORADO

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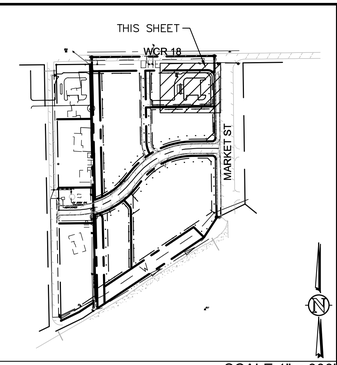
PROJECT NO. 01-0355.001.02
DOC CON # 0012-GRADE
SHEET 12 OF 28

GRADING LABEL LEGEND

BOR	BOTTOM OF RAMP
BOW	BACK OF WALK
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOWLINE
LIP	GUTTER LIP
TBC	TOP BACK CURB
TOR	TOP OF RAMP

PROPOSED BUILDING
2,997 SF
FF = 5003.00

FULL SCALE: 1" = 10'
HALF SCALE: 1" = 20'



KEY MAP SCALE 1" = 300'

NOTES

THIS PLAN IS INTENDED AS THE GRADING PLAN FOR MARKET ST BUSINESS PARK – LOT 2.

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SEE "AS BUILT/BOUNDARY SURVEY" COMPLETED BY AMERICAN WEST LAND SURVEY – DATED MAY 24, 2006, UPDATED TOPOGRAPHY AND IMPROVEMENTS SURVEY DATED AUGUST 07, 2019, MACY ENTERPRISES AS–BUILTS, AND AS CONSTRUCTED CONDITIONS DRONE AERIAL SURVEY BY AMERICAN WEST LAND SURVEY AND WESTERN ENGINEERING CONSULTANTS DATED APRIL 13, 2021.

SEE COVER SHEET FOR PROJECT BASIS OF BEARING & LEGAL DESCRIPTION.

SITE BENCHMARK WAS ESTABLISHED BEING A 3" BRASS CAP IN CONCRETE LYING FIVE FEET WEST OF A CONCRETE IRRIGATION DITCH NEAR THE INTESECTION OF COUNTY ROAD 18 AND NORTH CEDAR STREET, AND THIRTY FEET NORTH OF THE CENTERLINE OF COUNTY ROAD 18. STAMPED "NATIONAL GEODETIC SURVEY ACD 1" HAVING AND ELEVATION OF 5015.39 FEET (NAVD 1988)

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BUILDING SETBACKS FRONT/REAR = 25', SIDES = 10' PER ZONE DISTRICT HIGHWAY COMMERCIAL (CH)

SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED VALVE
- THRUST BLOCK TB
- GATE VALVE GV
- CURB STOP
- PIPE CROSSING
- MANHOLE
- MANHOLE W/ FLOW DIRECTION
- RD ROOF DRAIN
- PROPOSED GRAVEL
- EXISTING CONC
- PROPOSED CONC
- EXISTING ASPHALT
- PROPOSED ASPHALT

LINETYPE LEGEND

- LOT / PROPERTY / SECTION LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
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- POND WQ W/S
- SWALE
- EXISTING OVERHEAD ELEC
- EXISTING ELECTRICAL LINE
- EXISTING STORM LINE
- EXISTING SANITARY LINE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING FIBER OPTIC LINE
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GRADING DETAILS
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SHEET 13 OF 28

DEVELOPED DRAINAGE LEGEND

B1 — Sub-basin Designation
3.2 — Area in Acres
XX — C5
XX — C100
PROPOSED DRAINAGE PATTERN
DEVELOPED BASIN
1 — DESIGN POINT
Existing Drainage Pattern

L - INITIAL LENGTH
S - INTIAL SLOPE
L - TRAVEL LENGTH
S - TRAVEL SLOPE
*** AVERAGE SLOPE INCLUDES ROOF SLOPE OF 8.33%**

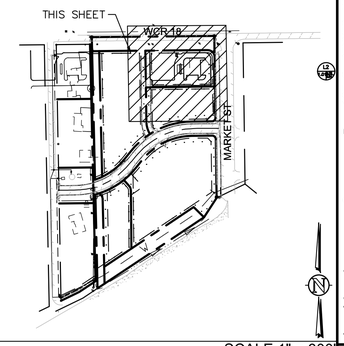
L_i = Li
S_i = Si
L_t = Lt
S_t = St

Developed Runoff Table - Market Street Business Park Subdivision

BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)	c/s	DESIGN POINT
L2							
C_2 (UDFCD 2018)	56.29	0.46	2.88	1.01	1.35	c/s	9
C_5	56.29	0.49	3.83	1.01	1.91	c/s	
C_{10}	56.29	0.55	4.74	1.01	2.63	c/s	
C_{100}	56.29	0.71	8.94	1.01	6.43	c/s	

SETBACK DATA TABLE

PROPERTY LINE	BUILDING SETBACK
FRONT	25.00'
REAR	25.00'
SIDE*	10.00'



KEY MAP SCALE 1" = 300'

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WELD COUNTY ROAD 18
N89°26'13"E 2638.80' (BASIS OF BEARINGS)
513.73'(M) 514'+/-(R)
EX 25' ASPHALT
OHE
87.8'
STOP
59' RIGHT-OF-WAY DEDICATED FOR COUNTY ROAD 18 BY MARKET STREET BUSINESS PARK PLAT REC NO. 4641087, DATED OCT. 16, 2020.
N89°26'13"E 484.36'
289.93'
10' DRAINAGE & UTILITY EASEMENT/SIDE SETBACK
SPILL CURB (TYP.)
24.00'
L_i = 40'
S_i = 8.33%
LOT 2
1.01 ac
ENTRY
HIGH PLAINS BANK
2,997 SF
L2
1.01 | 49 | 71
24.51'
12.00'
SPILL CURB (TYP.)
20.00'
10.00'
25' FRONT/ REAR SETBACK
SWALE 2E
123.78'
153.99'
L_t = 181'
S_t = 1.66%
120' ROW
10' DRAINAGE & UTILITY EASEMENT/SIDE SETBACK
SWALE 2S
289.93'
BARRIER CURB SEE DETAIL SHEET 16
START SWALE 2S
5.00'
SWALE 2/3
10.00' DRAINAGE & UTILITY EASEMENT
25.00' ACCESS & UTILITY EASMENT
LOT 1
1.98 ac
LOT 3
1.05 ac
MARKET STREET
(M) 679.0'+/-(R)

LOT DATA TABLE

DESCRIPTION	AREA	AREA (ac)	EXISITNG %	PROPOSED %
LOT	44,276 SF	1.02	100 %	100 %
PROPOSED BUILDINGS	2,997 SF	0.07	6.77 %	
TOTAL BUILDINGS	**2,997 SF**	**0.07**		**6.77 %**
PROPOSED CONCRETE	3,703 SF	0.09	8.36 %	
EX CONCRETE TO BE REMOVED	100 SF	0.00	0.23 %	
TOTAL CONCRETE	**3,603 SF**	**0.08**		**8.14 %**
PROPOSED ASPHALT	15,665 SF	0.36	35.38 %	
EX ASPHALT TO BE REMOVED	0 SF	0.00	0.00 %	
TOTAL ASPHALT	**15,665 SF**	**0.36**		**35.38 %**
EX GRAVEL TBR/REGRADED	0 SF	0.00	0.00 %	
PROPOSED GRAVEL	0 SF	0.00		0.00 %
TOTAL GRAVEL	**0 SF**	**0.00**		**0.00 %**
EXISTING LANDSCAPE AREA	38,954 SF	0.89	87.98 %	
PROPOSED LANDSCAPE AREA	**22,010 SF**	**0.51**		**49.71 %**

20 10 0 20 40
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'

NOTES

THIS PLAN IS INTENDED AS THE SITE PLAN FOR HIGH PLAINS BANK – LOT 2 MARKET ST BUSINESS PARK.

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- ST — EXISTING STORM LINE
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- WA — EXISTING WATER LINE
- GA — EXISTING GAS LINE
- FO — EXISTING FIBER OPTIC LINE
- T — EXISTING TELEPHONE LINE
- SA — PROPOSED SANITARY LINE
- SS — PROPOSED SANITARY SERVICE
- ST — PROPOSED STORM LINE
- WA — PROPOSED WATER LINE
- WAS — PROPOSED WATER SERVICE
- GA — PROPOSED GAS LINE
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- T — PROPOSED TELEPHONE LINE

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FINAL DRAINAGE PLAN MARKET STREET BUSINESS PARK SUBDIVISION - LOT 2

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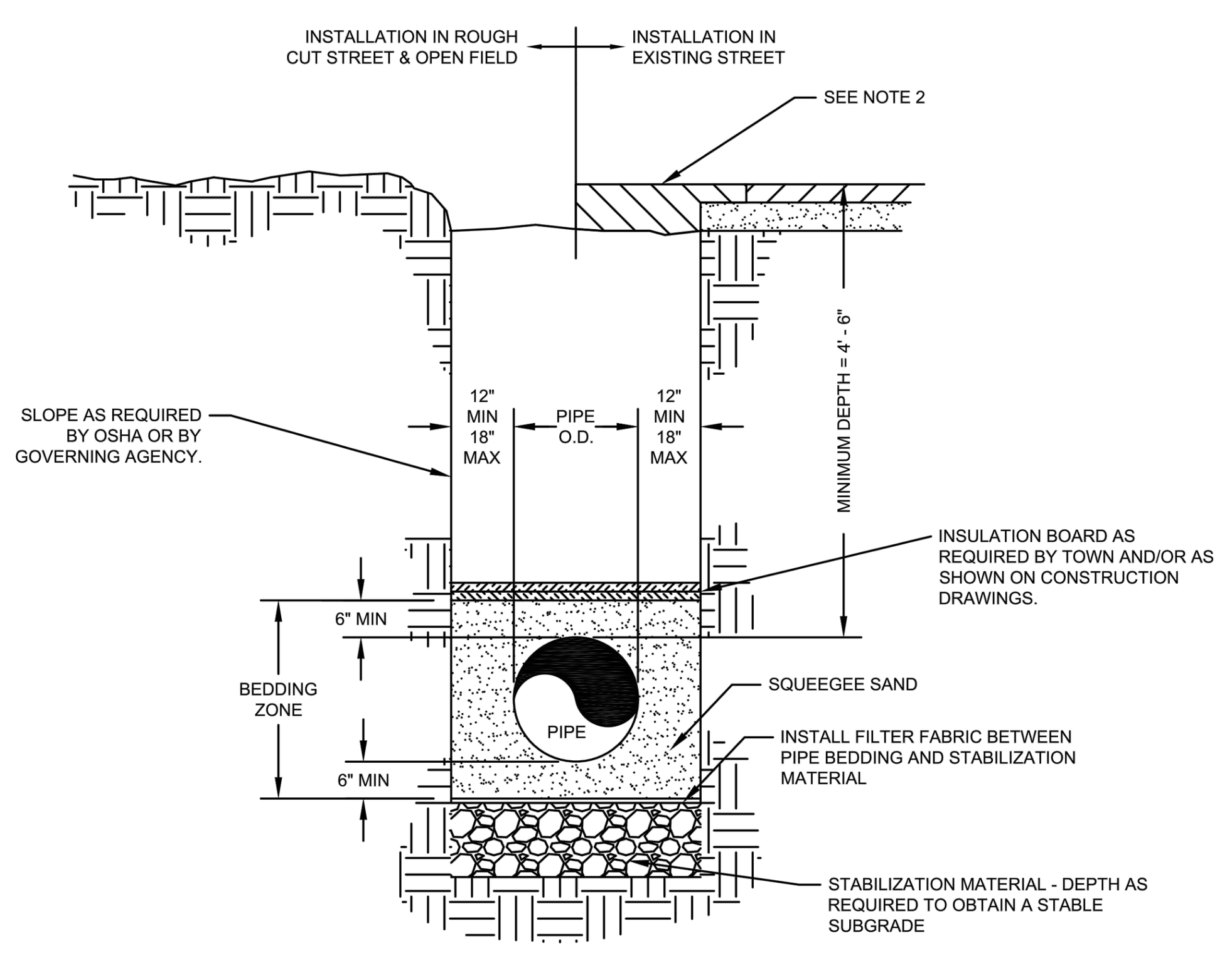
SHEET 14 OF 28



NOTES:

1. REFER TO CONSTRUCTION SPECIFICATIONS FOR STABILIZATION, FILTER FABRIC, BEDDING, BACKFILL MATERIAL, AND COMPACTION REQUIREMENTS.
2. REFER TO SPECIFICATIONS, CURRENT VERSION, FOR STREET CUT REQUIREMENTS.
3. AN OVER EXCAVATED TRENCH SHALL BE BACKFILLED AND COMPACTED (AS PER SPECIFICATIONS) UNDER THE DIRECTION OF THE TOWN.
4. PIPELINE SHALL BE LAID IN A PROPOSED FILL AREA PRIOR TO AREA BEING COMPLETELY FILLED TO PROPOSED FINAL GRADES AND COMPACTED PER TOWN SPECIFICATIONS.
5. COMPACTION TESTING METHODS AND FREQUENCY SHALL BE IN ACCORDANCE WITH PUBLIC WORKS CONSTRUCTION SPECIFICATIONS.
6. TRENCHES SHALL BE SHORED, BRACED, OR SHEETED AS NECESSARY FOR THE SAFETY AND PROTECTION OF PERSONNEL AND OTHER UTILITIES.
7. INSULATION BOARD SHALL BE 2" THICK MINIMUM, CONSISTING OF TWO BOARDS (1" MINIMUM PER BOARD) WITH OFFSET JOINTS PLACED ACROSS FULL TRENCH WIDTH.

TRENCH CROSS SECTION

PEC 420 LINDEN ST, SUITE 110 FORT COLLINS, CO 80524 970-232-9558 www.pec1.com
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

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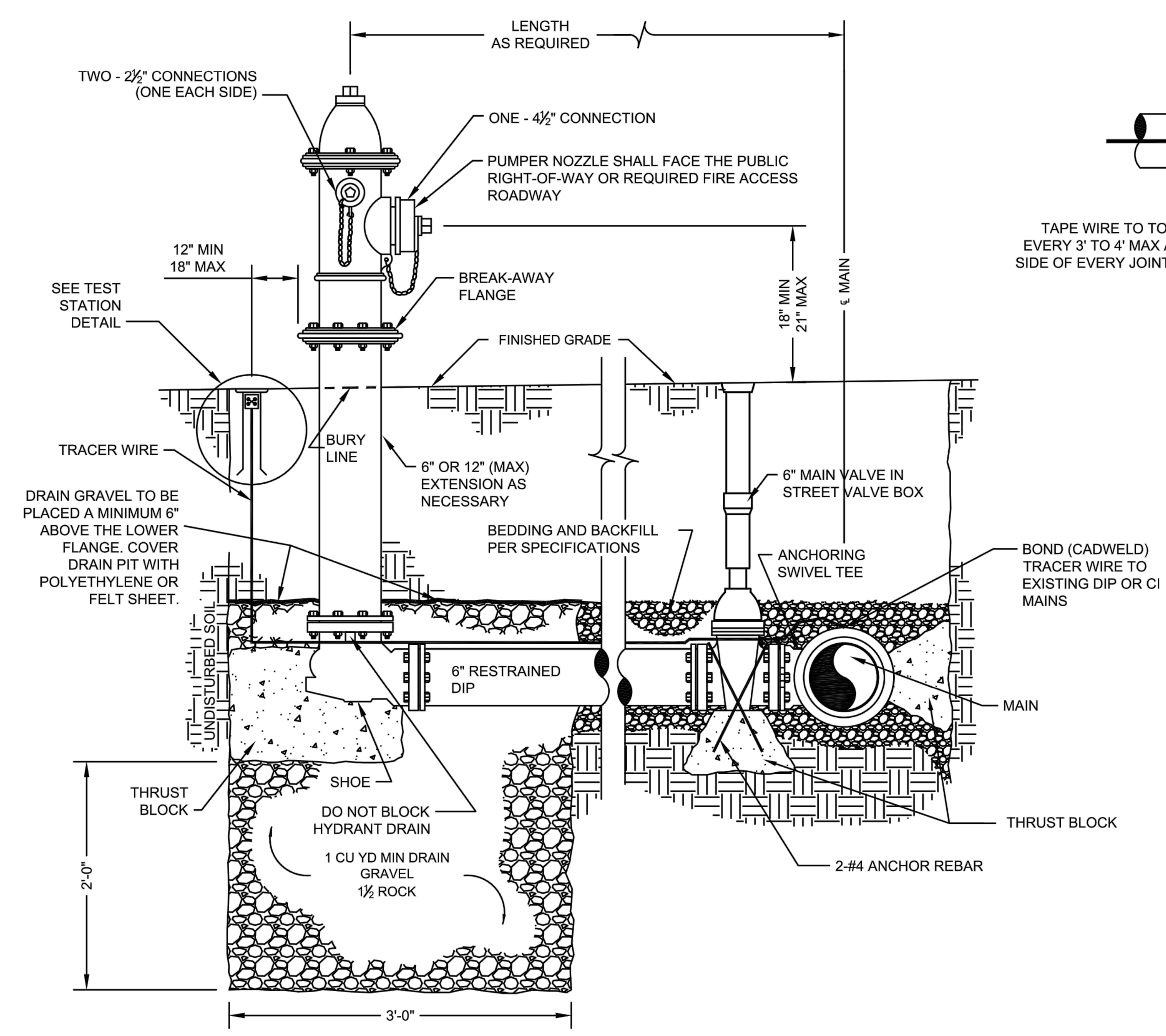
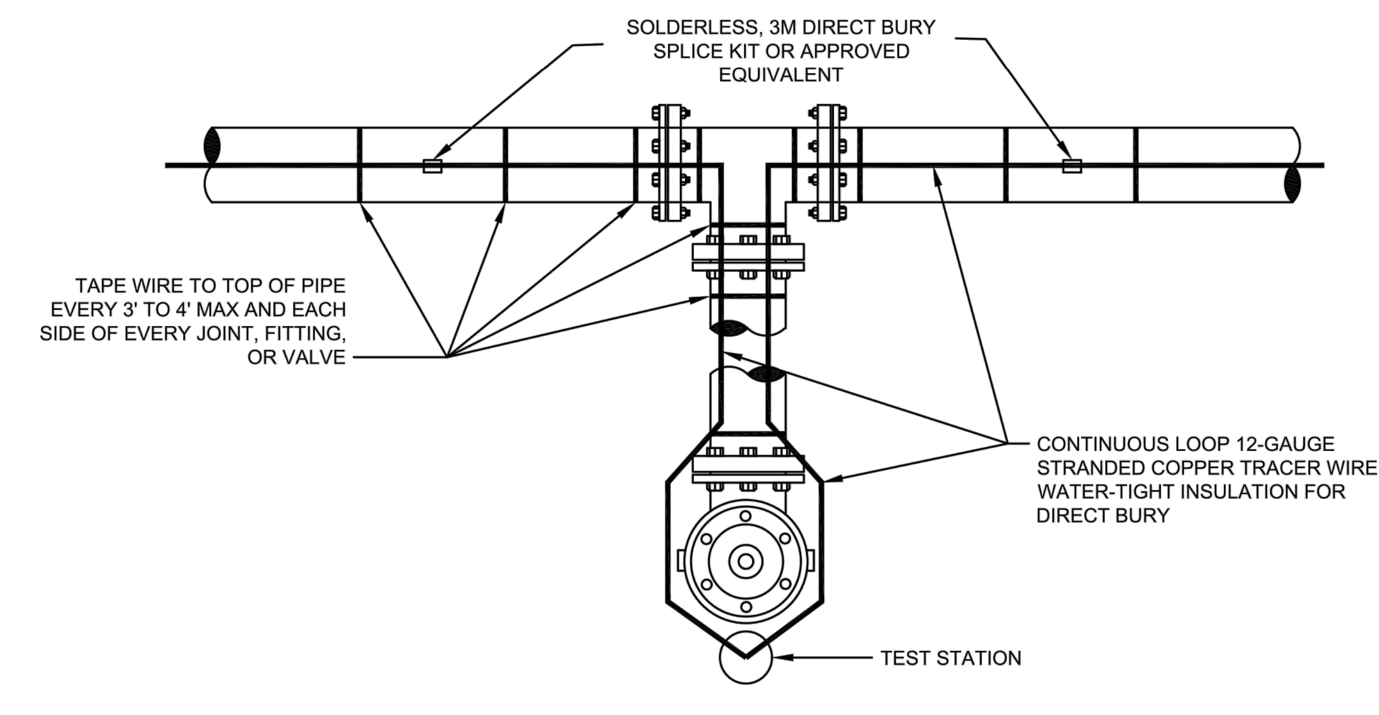
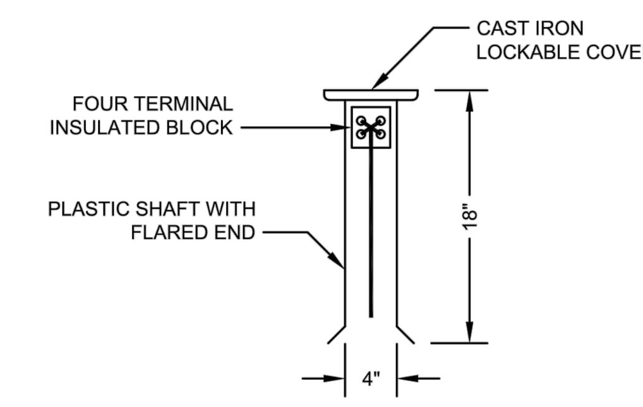


ELEVATION VIEW



TRACER WIRE INSTALLATION
PLAN VIEW



TEST STATION DETAIL

FIRE HYDRANT ASSEMBLY WITH TRACER WIRE INSTALLATION

PEC 420 LINDEN ST, SUITE 110 FORT COLLINS, CO 80524 970-232-9558 www.pec1.com
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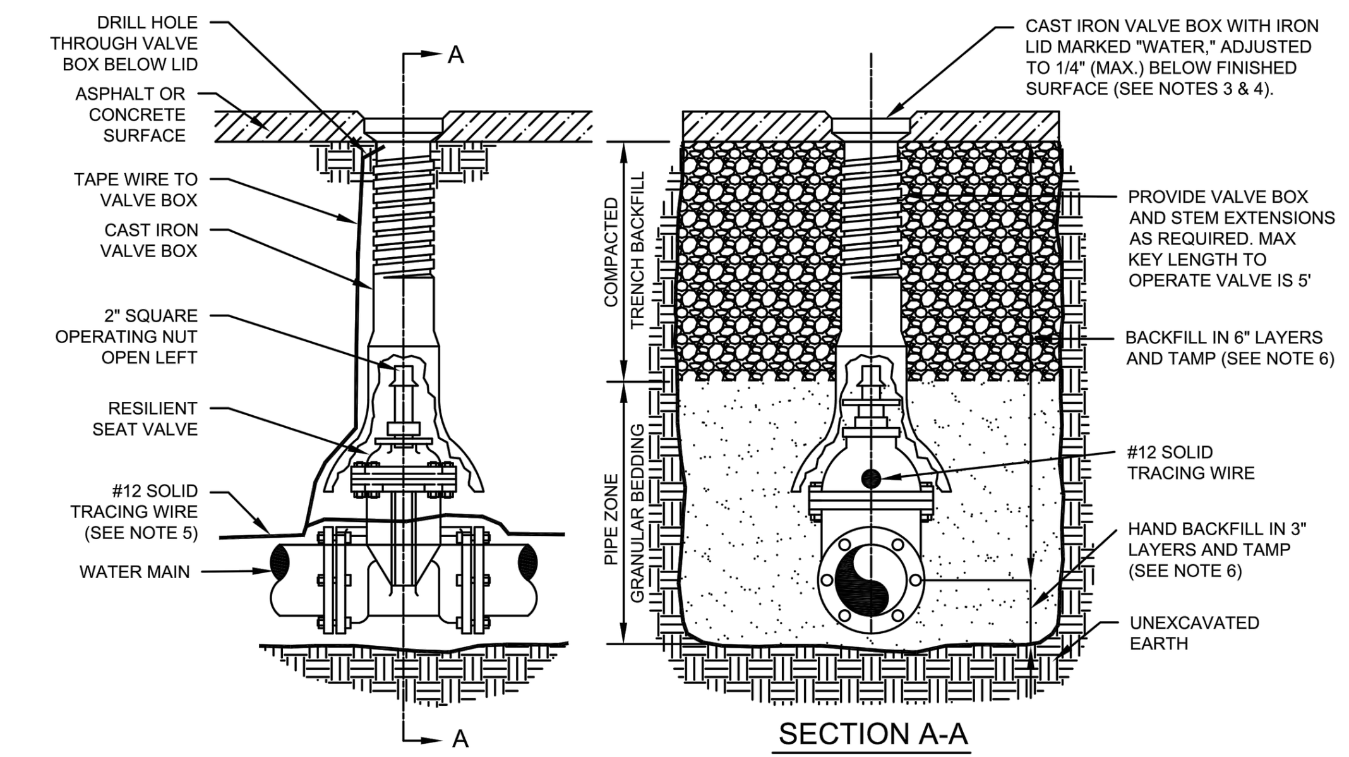
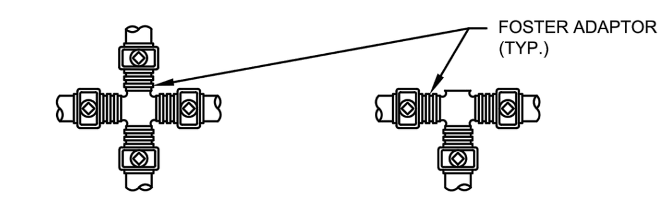


SECTION A-A
(GATE VALVE SHOWN, SIMILAR FOR BUTTERFLY VALVE)

NOTES:

1. ALL VALVES SHALL BE ENCASED IN A MINIMUM 8 MIL. POLYETHYLENE WRAP. A 2" WIDE, TEN MIL. THICK POLYETHYLENE PRESSURE-SENSITIVE TAPE SHALL BE USED TO CLOSE SEAMS, SECURE TO PIPE OR HOLD OVERLAPS.
2. ALL VALVES BOXES SHALL BE OF CAST IRON CONSTRUCTION, TWO PIECE THREADED ADJUSTABLE DESIGN PER DEPARTMENT STANDARDS. ALL-THREAD RODS AND NUTS SHALL BE 316 STAINLESS STEEL.
3. WITHIN OPEN ARES OR AREAS TO BE DEVELOPED IN THE FUTURE, VALVE BOX LID MAY BE DEPRESSDE OR HAVE A CONCRETE PAD. MARK VALVE LOCATION WITH FLEXIBLE MARKER POST.
4. FOR FIRE SERVICE LINES ONLY: LIDS SHALL BE LOCKING TYPE.
5. TRACER WIRE TO BE TYPICALLY DAYLIGHTED AT FIRE HYDRANT. IF HYDRANT IS NOT AVAILABLE, PROVIDE AT MAINLINE VALVE AS SHOWN ABOVE AND COIL A MINIMUM OF 3' OF TRACER WIRE IN VALVE BOX.
6. SEE SPECIFICATIONS FOR COMPACTION AND TESTING REQUIREMENTS.
7. VALVES TYPICALLY REQUIRED AS SHOWN, UNLESS OTHERWISE APPROVED BY THE DEPARTMENT, SINCE OPERATIONAL CONSIDERATIONS MAY RESULT IN FEWER VALVES BEING REQUIRED TO BE INSTALLED.
8. RESTRAINT FOR VALVES TO A FITTING CAN BE MADE DIRECTLY WITH FOSTER ADAPTORS OR BY MECHANICAL JOINT RESTRAINT. EXAMPLE FOSTER ADAPTOR CONNECTIONS ARE DETAILED BELOW.



VALVE BOX

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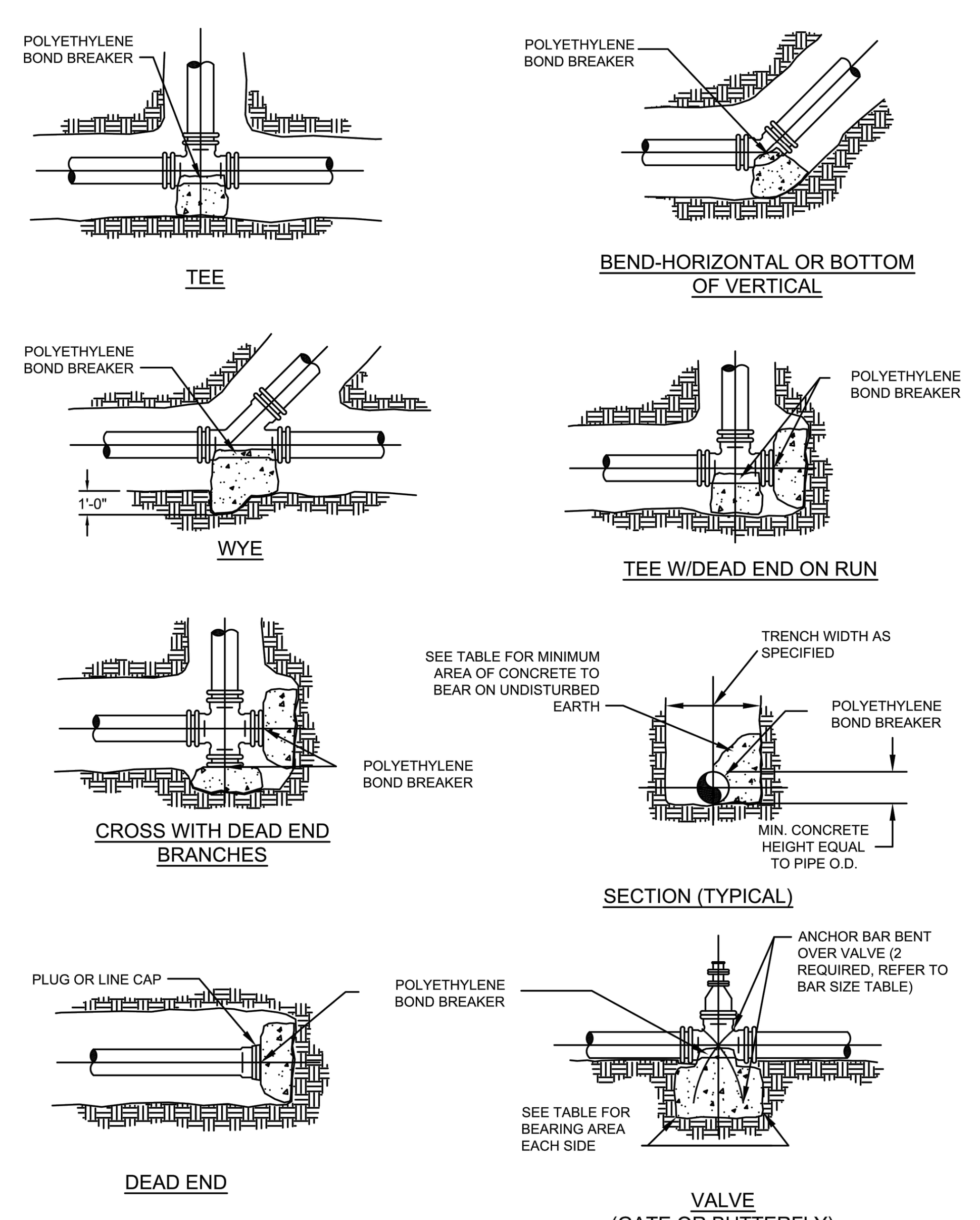

THRUST BLOCK (SHEET 1 OF 3)

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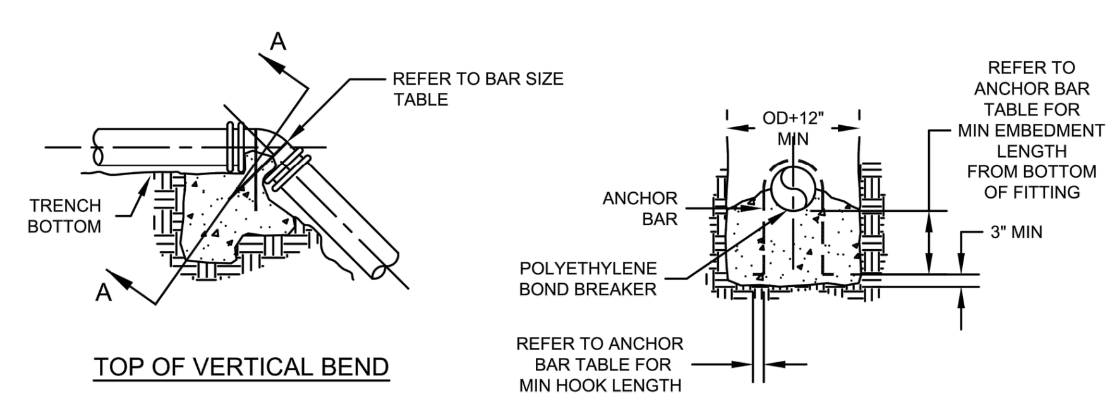

TOP OF VERTICAL BEND

SECTION A-A

VOL. CONCRETE FOR 100 PSI TEST PRESSURE (CU FT)

PIPE SIZE	BENDS		
	45°	22½°	11¼°
6"	18.6	9.5	4.7
8"	32.0	16.3	8.2
12"	68.1	34.7	17.5
16"	118.3	60.3	30.3

FOR TEST PRESSURE GREATER THAN 100 PSI, ADJUST CONCRETE VOLUMES BY MULTIPLYING TABLE VALUES BY CORRECTION FACTOR "F"

$$F = \frac{\text{TEST PRESSURE}}{100}$$

ANCHOR BAR INFORMATION FOR 100 PSI TEST PRESSURE

CONCRETE VOLUME	REBAR SIZE	MIN EMBEDMENT LENGTH	MIN HOOK LENGTH
60 CF	NO. 4	8"	8"
90 CF	NO. 5	12"	10"
133 CF	NO. 6	16"	12"

THRUST BLOCK (SHEET 2 OF 3)

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THRUST BLOCK BEARING AREAS (SQ-FT) FOR INTERNAL STATIC PRESSURE OF 100 PSI AND SOIL BEARING CAPACITY OF 1000 PSF

DIAM (IN)	90° BEND	45° BEND	22½° BEND	11¼° BEND	DEAD ENDS, VALVES & TEES, PLUGGED CROSS BRANCHES
3	1.7	0.9	0.5	0.2	1.2
4	2.6	1.4	0.7	0.4	1.8
6	5.3	2.9	1.5	0.7	3.7
8	9.1	4.9	2.5	1.3	6.4
12	19.4	10.5	5.3	2.7	13.7
16	33.6	18.2	9.3	4.7	23.8

NOTES:

1. POLYETHYLENE BOND BREAKER SHALL BE INSTALLED BETWEEN ALL FITTINGS AND CONCRETE.
2. ALL THRUST BLOCKING SHALL BE CAST-IN-PLACE CONCRETE WITH A MINIMUM YIELD 28 DAY STRENGTH OF 2000 P.S.I.
3. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED SOIL. FORMS SHALL BE USED AS REQUIRED TO OBTAIN ADEQUATE BEARING AREA AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND WILL NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE.
4. THE CITY MAY REQUIRE LARGER THRUST BLOCKS THAN SPECIFIED IF SOILS ARE DETERMINED TO PROVIDE LESS THAN 1000 PSF BEARING CAPACITY.
5. IN THE ABSENCE OF SOIL BEARING CAPACITY INFORMATION USE 1000 PSF.
6. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED BEARING AREAS BY A CORRECTION FACTOR "F":
$$F = \frac{\text{(ACTUAL SPECIFIED TEST PRESSURE IN PSI)/(100 PSI)}}{\text{(ACTUAL SOIL BEARING CAPACITY IN PSF)/(1000 PSF)}}$$
7. EXAMPLE: CALCULATE THE BEARING AREA FOR 8"-90° BEND WITH A STATIC INTERNAL PRESSURE OF 150 PSI AND SOIL BEARING CAPACITY OF 3000 PSF.

FROM TABLE BEARING AREA = 9.1 SF

$$F = \frac{\text{(150 PSI)/(100 PSI)}}{\text{(3000 PSF)/(1000 PSF)}} = 0.5$$

REQUIRED BEARING AREA ON UNDISTURBED SOIL = (0.5)(9.1 SF) =4.55 SF

THRUST BLOCK (SHEET 3 OF 3)

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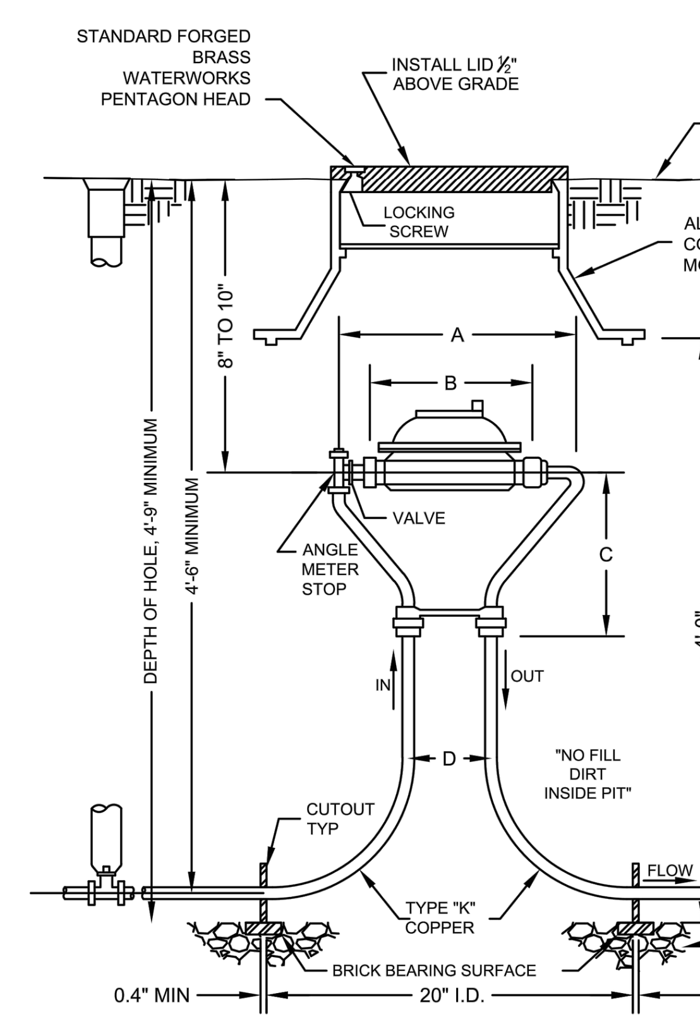

METER INSTALLATION DIMENSIONS				
METER SIZE	A	B	C	D
3/4"	14 1/4"	7 1/2"	8 15/16"	5"
1"	17 1/4"	10 3/4"	11 1/4"	6"

NOTES:

1. NOT FOR INSTALLATION IN ROADWAYS, DRIVEWAYS, OR PARKING AREAS.
2. IF SURFACE IS NOT TO FINAL GRADE AT TIME OF INSTALLATION OF METER, OR GRADE CHANGES AFTER INSTALLATION, OWNER MUST ADJUST PIT TO MEET SPECIFICATIONS.
3. METER YOKE SHALL BE LOCATED NOT LOWER THAN 12" BELOW THE TOP LID. IN THE EVENT THIS METER PIT IS ADJUSTED TO FINAL GRADE, OWNER SHALL ENSURE THAT THE YOKE BE RAISED/LOWERED AS REQUIRED.
4. METER TO BE LOCATED A MINIMUM OF 2' FROM THE CURB STOP AND WITHIN THE UTILITY EASEMENT ADJACENT TO FRONT SIDEWALK, UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
5. METER PIT SHALL BE PLACED ON FREE-DRAINING GRAVEL BASE. CONCRETE SHALL NOT BE PERMITTED.
6. METER PIT SHALL BE 20" INSIDE DIAMETER AND 48" DEEP DUROPIPE BITUMINIZED FIBER BY METRO-STATES PLASTICS OR APPROVED EQUAL.
7. NO SPRINKLER SYSTEM CONNECTIONS SHALL BE MADE IN THE METER PIT. SPRINKLER PIT SHALL BE MINIMUM 5 FT DOWNSTREAM FROM METER PIT, MEASURED EDGE TO EDGE.
8. NO MAJOR LANDSCAPING OR STRUCTURES SHALL BE LOCATED WITHIN 4 FT OF THE METER PIT.
9. IF PRESSURE REDUCING VALVE IS REQUIRED BY PLUMBING CODE, IT SHALL BE INSTALLED INSIDE THE BUILDING, IMMEDIATELY FOLLOWING THE MAIN WATER SHUT OFF VALVE.
10. SERVICE BOX FOR CURB STOP SHALL BE OF THE MUELLER TYPE WITH A COMBINATION LID AND PENTAGON PLUG (MODEL #H-10334) AND AN EXTENSION TYPE CURB BOX WITH AN ARCH PATTERN BASE AND SHUT-OFF ROD, OR APPROVED EQUAL.
11. CURB STOPS SHALL BE STRAIGHT AND CLEAN OF ANY DEBRIS.
12. COPPER SHALL SHOW NO VISIBLE CRIMPING.

SETTING FOR 0.75 IN & 1 IN METER

PEC 420 LINDEN ST, SUITE 110 FORT COLLINS, CO 80524 970-232-9558 www.pec1.com
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

SCALE:	NOT TO SCALE
DATE:	12/05/2019
REVISION NO.:	
DETAIL NO.:	W-12

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6950 W MORELOS PL
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DRAWN BY: CFC
CHECKED BY: CFC

PROJECT NO. 01-0355.001.02
DOC CON # 0015-WTR DTLS

CURB RAMP GENERAL NOTES:

(1) IN NEW CONSTRUCTION OR FULL-DEPTH RECONSTRUCTION, PROVIDE A SEPARATE CURB RAMP FOR EACH MARKED OR UNMARKED PEDESTRIAN STREET CROSSING. CURB RAMPS SHALL BE CONTAINED WHOLLY WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING OR CROSSWALK THEY SERVE, OR AS SHOWN ON THE CONTRACT PLANS.

(2) ALTERATIONS ARE DEFINED AS CHANGES TO AN EXISTING HIGHWAY THAT AFFECT PEDESTRIAN ACCESS, CIRCULATION, OR USE. ALTERATIONS INCLUDE, BUT ARE NOT LIMITED TO, RESURFACING, REHABILITATION, RECONSTRUCTION, CURB RAMP RETROFITS, HISTORIC RESTORATION, OR CHANGES OR REARRANGEMENT TO STRUCTURAL PARTS OR ELEMENTS OF A PEDESTRIAN FACILITY.

(3) A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP OR TURNING SPACE, WITHOUT RAISED OBSTACLES, THAT COULD BE MISTAKENLY TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

(4) IN ALTERATIONS, WHERE AN EXISTING PHYSICAL CONSTRAINT PREVENTS PROVIDING A SEPARATE CURB RAMP FOR EACH PEDESTRIAN STREET CROSSING, A SINGLE DIAGONAL RAMP (ON THE APEX) SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS. THE USE OF A SINGLE DIAGONAL RAMP SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. DIAGONAL RAMPS ARE NOT ACCEPTABLE IN NEW CONSTRUCTION OR FULL-DEPTH RECONSTRUCTION.

(5) DETECTABLE WARNINGS SURFACES (DWS) ARE INTENDED TO INDICATE THE BOUNDARY BETWEEN A PEDESTRIAN ROUTE AND VEHICULAR ROUTE WHERE THERE IS A FLUSH RATHER THAN CURBED CONNECTION. DWS ARE NOT INTENDED TO PROVIDE WAYFINDING. DWS SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS;
1. CURB RAMPS, BLENDED TRANSITIONS, AND DEPRESSED CORNERS AT PEDESTRIAN STREET CROSSINGS;
2. PEDESTRIAN REFUGE ISLANDS (6 FEET IN WIDTH OR GREATER);
3. BOARDING PLATFORMS AT TRANSIT STOPS WHERE THE EDGE OF THE PLATFORM IS NOT PROTECTED TO PEDESTRIAN CROSS TRAFFIC; AND
4. BOARDING AREAS AT SIDEWALK OR STREET LEVEL TRANSIT STOPS WHERE THE AREA IS NOT PROTECTED TO PEDESTRIAN CROSS TRAFFIC.

(6) DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH THE ADJACENT GUTTER, HIGHWAY, OR PEDESTRIAN ACCESS ROUTE SURFACE, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT. FEDERAL YELLOW COLOR IS PREFERRED, HOWEVER, OTHER COLORS MAY BE USED IF APPROVED BY THE ENGINEER.

(7) IN ALTERATIONS, TO AVOID CHASING GRADE INDEFINITELY ON STEEP ROADWAYS, A CURB RAMPS LENGTH IS NOT REQUIRED TO EXCEED 15 FEET REGARDLESS OF THE RESULTING RAMP RUNNING SLOPE.

(8) ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE.

(9) DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, OR OTHER OBSTRUCTIONS SHALL NOT BE INSTALLED ON THE CURB RAMP, OR TURNING SPACE AREAS.

(10) IN NEW CONSTRUCTION, PULL BOXES, METER BOXES, MAINTENANCE HOLE COVERS, VAULT LIDS, OR SIMILAR, SHALL NOT BE CONSTRUCTED WITHIN ANY PART OF CURB RAMP OR TURNING SPACE. IN ALTERATIONS, WHERE THESE ITEMS CANNOT BE RELOCATED OUTSIDE OF THE CURB RAMP OR TURNING SPACE, THEY MUST NOT CREATE A VERTICAL DISCONTINUITY GRATER THAN 1/2 INCH. ANY VERTICAL DISCONTINUITY BETWEEN 1/4 INCH AND 1/2 INCH SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1V:2H. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE SURFACE DISCONTINUITY.

(11) CONSTRUCTION OF ANY REQUIRED PEDESTRIAN CURB SHALL BE INCLUDED IN THE BID PRICE OF THE CONCRETE CURB RAMP AND WILL NOT BE PAID FOR SEPARATELY.

(12) ALL CURB RAMP JOINTS AND GRADE BREAKS SHALL BE FLUSH (0'-1/8"). THE JOINT BETWEEN THE ROADWAY SURFACE AND THE GUTTER PAN SHALL BE FLUSH.

(13) THE CONTRACTOR SHALL VERIFY REMOVAL LIMITS ARE SUFFICIENT TO PROVIDE POSITIVE DRAINAGE, MAINTAIN EXISTING DRAINAGE PATTERNS, AND AVOID PONDING IN THE FINAL CONFIGURATION.

(14) FLARED SIDE SLOPES MAY EXCEED 10.0% ONLY WHERE THEY ABUT A NON-WALKABLE SURFACE, OR WHERE THE ADJACENT RAMP SURFACE IS BLOCKED TO PEDESTRIAN TRAFFIC.

(15) THE CHANGE IN GRADE AT THE BOTTOM OF THE CURB RAMP SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 13.33%. THE COUNTER SLOPE OF THE GUTTER AT THE FOOT OF A RAMP, TURNING SPACE, OR BLENDED TRANSITION SHALL NOT EXCEED 5.0%.

(16) GRADE BREAKS AT THE TOP AND BOTTOM OF RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF THE RAMP RUN OR TURNING SPACE. SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.

(17) A BROOM FINISH, WITH SWEEPS PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAFFIC, SHALL BE APPLIED TO ALL RAMP AND TURNING SPACE SURFACES.

(18) IN ALTERATIONS, WHERE A RAMP OR TURNING SPACE MUST TIE INTO AN EXISTING GRADE THAT CANNOT BE ALTERED, THE RAMP OR TURNING SPACE MAY BE WARPED TO TRANSITION TO THE REQUIRED CROSS SLOPE. THE TRANSITION TO THE REQUIRED CROSS SLOPE SHALL BE SPREAD EVENLY OVER THE LENGTH OF THE RAMP OR TURNING SPACE TO MINIMIZE THE DEGREE OF WARPING. THE RATE OF CHANGE ON A RAMP OR TURNING SPACE SHALL NOT EXCEED 3% PER LINEAR FOOT.

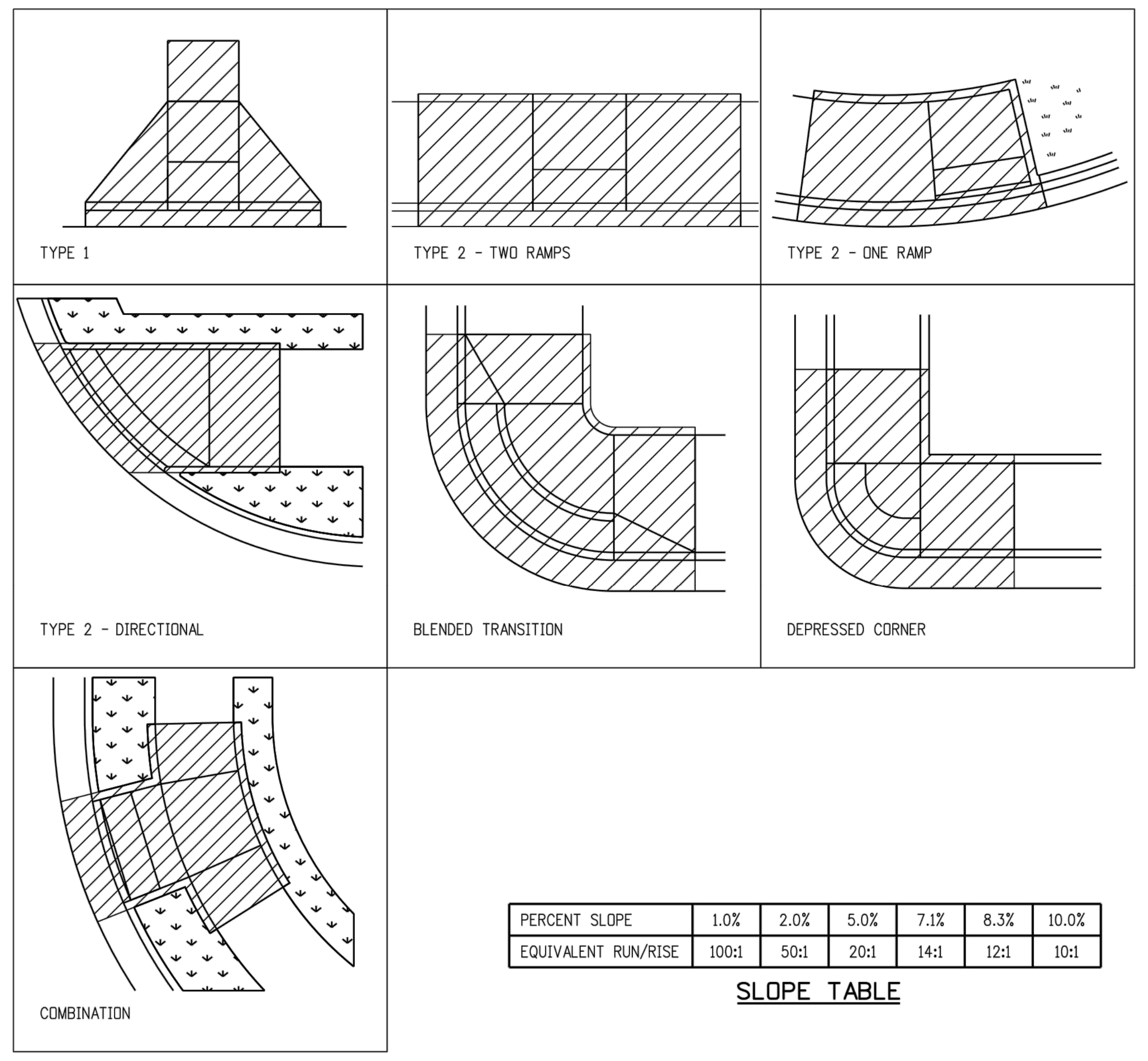
(19) DESIGN AND CONSTRUCT CURB RAMPS, TURNING SPACES, AND FLARE SLOPES WITH THE FLATTEST SLOPES POSSIBLE. THE SLOPES INDICATED IN THESE DETAILS SHOW THE MAXIMUM SLOPES ALLOWABLE. PREFERRED VALUES TO BE USED DURING DESIGN, LAYOUT, AND CONSTRUCTION ARE:
- RAMP RUNNING SLOPE 7.5%
- RAMP CROSS SLOPE 1.5%
- TURNING SPACE RUNNING SLOPE 1.5%
- TURNING SPACE CROSS SLOPE 1.5%
- FLARE SLOPE 8.0-9.0%

(20) WHERE SNOW REMOVAL EQUIPMENT WILL BE USED TO CLEAR THE PEDESTRIAN ACCESS ROUTE, CONSULT THE ENGINEER PRIOR TO CONSTRUCTION TO ENSURE THE WIDTH AND THICKNESS OF CURB RAMPS IS SUFFICIENT TO ACCOMODATE SUCH EQUIPMENT.

(21) PROVIDE EXPANSION JOINT MATERIAL 1/2" THICK WHERE CURB RAMPS ADJOIN ANY RIGID PAVEMENT, OR STRUCTURE. THE TOP OF THE JOINT FILLER MATERIAL SHALL BE FLUSH WITH ADJOINING CONCRETE SURFACES. THE EXPANSION JOINT MATERIAL SHALL EXTEND FOR THE FULL DEPTH OF THE CONCRETE SURFACE.

(22) PROVIDE TIE BAR REINFORCING BETWEEN INDEPEDENTLY POURED CONCRETE CURB RAMPS OR TURNING SPACES AND CURB AND GUTTER. DRILL AND GROUT NO. 4 12 INCH LONG REINFORCEMENT BARS (EPOXY COATED) AT 18 INCHES CENTER TO CENTER MINIMUM.

CURB RAMP PAY AREAS



PERCENT SLOPE	1.0%	2.0%	5.0%	7.1%	8.3%	10.0%
EQUIVALENT RUN/RISE	100:1	50:1	20:1	14:1	12:1	10:1

SLOPE TABLE

GENERAL NOTES & PAY AREAS

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

Colorado Department of Transportation
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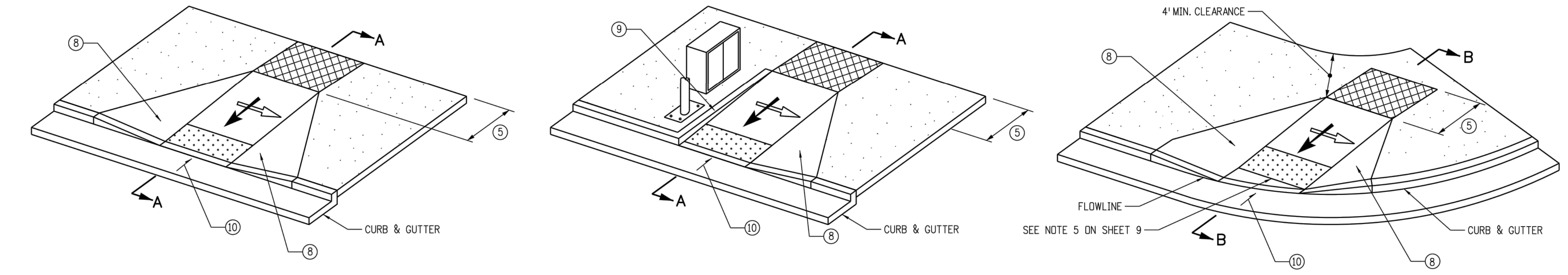
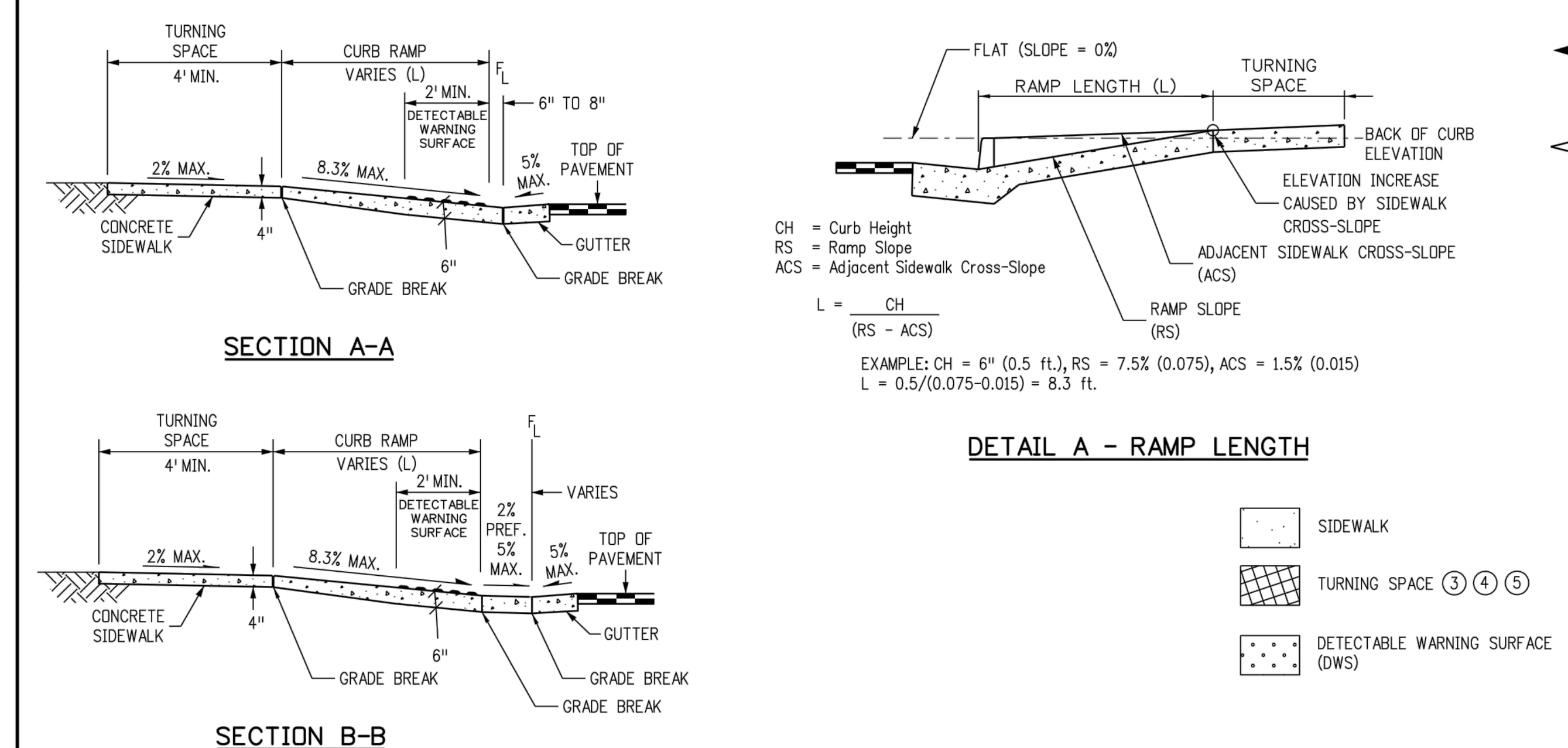
Project Development Branch JBK

CURB RAMPS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-608-1
Standard Sheet No. 1 of 10
Project Sheet Number:





SIDEWALK
TURNING SPACE (3) (4) (5)
DETECTABLE WARNING SURFACE (DWS)

PERPENDICULAR RAMP NOTES

(1) RAMP WIDTH - PROVIDE 5 FT. OR GREATER WHERE POSSIBLE. IF SITE CONSTRAINTS DO NOT PERMIT, PROVIDE 4 FT. MINIMUM. RAMPS SERVICING SHARED USE PATHS SHALL MATCH THE WIDTH OF THE PATH.

(2) RAMP RUNNING SLOPE - 8.3% MAX.

(3) TURNING SPACE RUNNING SLOPE - 2.0% MAX. TURNING SPACE RUNNING SLOPE IS MEASURED IN THE SAME DIRECTION AS THE RAMP RUNNING SLOPE.

(4) RAMP AND TURNING SPACE CROSS SLOPE - 2.0% TYPICAL. AT CROSSINGS WITHOUT YIELD OR STOP CONTROL, OR WITH A SIGNAL WHERE VEHICLES CAN PROCEED THROUGH THE INTERSECTION WITHOUT SLOWING OR STOPPING, THE CROSS SLOPE OF RAMPS AND TURNING SPACES MAY EQUAL THE HIGHWAY GRADE. AT MIDBLOCK PEDESTRIAN STREET CROSSINGS THE RAMP AND TURNING SPACE CROSS SLOPE MAY EQUAL THE HIGHWAY GRADE.

(5) TURNING SPACE DIMENSIONS - PROVIDE A TURNING SPACE AT THE TOP OF PERPENDICULAR RAMPS WITH A WIDTH EQUAL TO THE WIDTH OF THE CURB RAMP. TURNING SPACE LENGTH MUST BE 4 FT. MINIMUM, MEASURED IN THE DIRECTION OF THE RAMP RUN. WHEN A TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, INCREASE LENGTH TO 5 FT. MINIMUM IN THE DIRECTION OF THE RAMP RUN.

(6) RAMP ALIGNMENT - RAMPS SHALL BE ALIGNED TO BE FULLY CONTAINED WITHIN THE CROSSWALK OR STREET CROSSING THEY SERVE. PROVIDE ONE RAMP FOR EACH STREET CROSSING DIRECTION. IN ALTERATIONS, WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT PROVIDING ONE CURB RAMP FOR EACH CROSSING DIRECTION, A SINGLE DIAGONAL CURB RAMP (ON THE APEX OF A CORNER) SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS. IF A DIAGONAL RAMP IS USED, A CLEAR SPACE 4 FT. X 4FT. MUST BE PROVIDED AT THE BASE OF THE RAMP. THE CLEAR SPACE MUST BE WITHIN BOTH CROSSWALKS AND WHOLLY OUTSIDE OF ANY ADJACENT VEHICULAR TRAVEL LANES. DIAGONAL RAMPS ARE NOT ACCEPTABLE IN NEW CONSTRUCTION, OR FULL-DEPTH RECONSTRUCTION.

(7) RAMP LENGTH - PERPENDICULAR RAMP LENGTH IS DEPENDENT UPON THE RAMP SLOPE, HEIGHT OF CURB, AND ADJACENT SIDEWALK CROSS-SLOPE WHICH MUST BE INTERCEPTED. SEE DETAIL A FOR CALCULATING RAMP LENGTH WHEN CHASING SIDEWALK CROSS-SLOPE. WHERE TERRAIN IS SLOPING A RAMP IS NOT REQUIRED TO CHASE GRADE MORE THAN 15 FT. REGARDLESS OF THE RESULTING RAMP SLOPE.

(8) RAMP FLARES - WHERE A RAMP EDGE ABUTS A WALKABLE SURFACE, A FLARED SIDE SHALL BE PROVIDED. RAMP FLARE SLOPES SHALL NOT EXCEED 10.0%.

(9) VERTICAL CURB RETURNS - VERTICAL CURB RETURNS MAY BE USED ONLY WHERE A RAMP ABUTS A NON-WALKABLE SURFACE, OR WHERE A RAMP IS PROTECTED FROM PEDESTRIAN CROSS TRAFFIC (FOR EXAMPLE BY A SIGNAL CABINET OR UTILITY POLE WHICH BLOCKS PASSAGE).

(10) GUTTER COUNTER SLOPE - 5.0% MAX.

TYPE 1 PERPENDICULAR CURB RAMPS

CURB RAMPS — STANDARD PLAN NO. M-608-1 — Standard Sheet No. 2 of 10
Issued by the Project Development Branch: July 31, 2019
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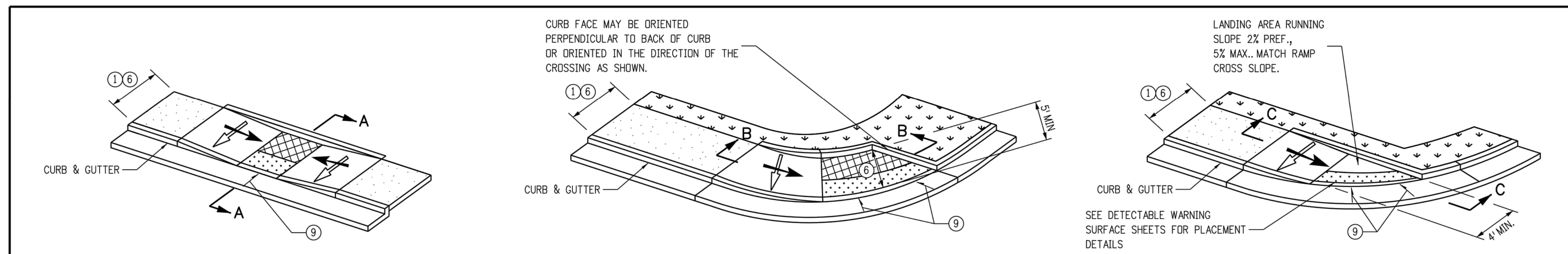

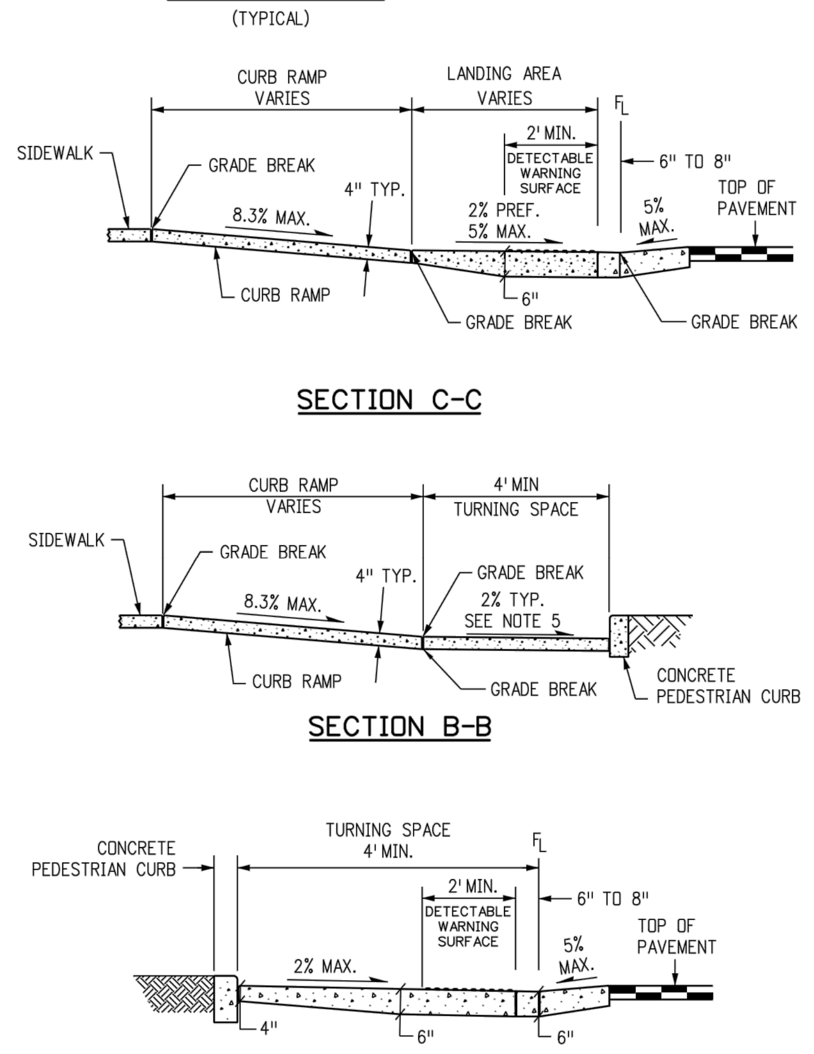

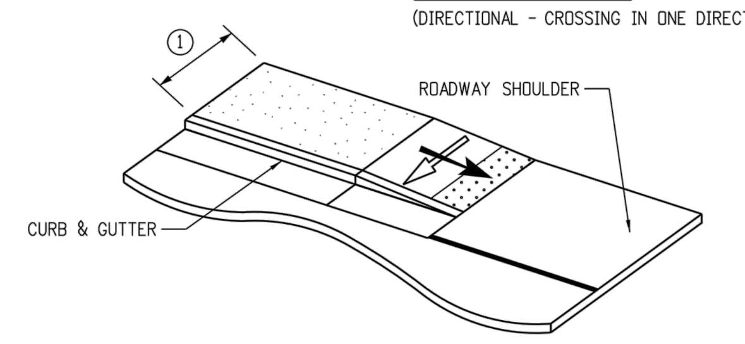

SIDEWALK TO SHOULDER TRANSITION

SIDEWALK
TURNING SPACE (4) (5) (6)
DETECTABLE WARNING SURFACE (DWS)

PARALLEL RAMP NOTES

(1) RAMP WIDTH - PROVIDE A RAMP WIDTH EQUAL TO THE ADJOINING SIDEWALK, PROVIDE 4 FT. WIDTH MINIMUM. RAMPS SERVICING SHARED USE PATHS SHALL MATCH THE WIDTH OF THE PATH.

(2) RAMP RUNNING SLOPE - 8.3% MAX.

(3) RAMP CROSS SLOPE - 2.0% MAX.

(4) TURNING SPACE RUNNING SLOPE - 2.0% MAX. TURNING SPACE RUNNING SLOPE IS MEASURED PERPENDICULAR TO THE BACK OF CURB.

(5) TURNING SPACE CROSS SLOPE - 2.0% TYPICAL, AT CROSSINGS WITHOUT YIELD OR STOP CONTROL, OR WITH A SIGNAL WHERE VEHICLES CAN PROCEED THROUGH THE INTERSECTION WITHOUT SLOWING OR STOPPING, THE CROSS SLOPE OF THE TURNING SPACE MAY EQUAL THE HIGHWAY GRADE. AT MIDBLOCK PEDESTRIAN STREET CROSSINGS THE TURNING SPACE CROSS SLOPE MAY EQUAL THE HIGHWAY GRADE. TURNING SPACE CROSS SLOPE IS MEASURED IN THE DIRECTION OF THE RAMP RUN.

(6) TURNING SPACE DIMENSIONS - PROVIDE A TURNING SPACE AT THE BOTTOM OF PARALLEL RAMPS WITH A WIDTH EQUAL TO THE WIDTH OF THE CURB RAMP. PROVIDE 4 FT. MINIMUM, MEASURED IN THE DIRECTION OF THE RAMP RUN. IF THE TURNING SPACE IS CONSTRAINED ON TWO SIDES, PROVIDE 5 FT. MEASURED IN THE DIRECTION OF PEDESTRIAN STREET CROSSING. THE TURNING SPACE MAY CONTAIN THE DETECTABLE WARNING SURFACE.

(7) RAMP ALIGNMENT - RAMPS SHALL BE ALIGNED SO THE TURNING SPACE IS FULLY CONTAINED WITHIN THE CROSSWALK OR STREET CROSSING THEY SERVE. PROVIDE ONE RAMP FOR EACH STREET CROSSING DIRECTION. IN ALTERATIONS, WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT PROVIDING ONE CURB RAMP FOR EACH CROSSING DIRECTION, A SINGLE DIAGONAL CURB RAMP (ON THE APEX OF A CORNER) SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS. DIAGONAL RAMPS ARE NOT ACCEPTABLE IN NEW CONSTRUCTION, OR FULL-DEPTH RECONSTRUCTION.

(8) RAMP LENGTH - PARALLEL RAMP LENGTH IS DEPENDENT UPON THE RAMP SLOPE AND THE CHANGE OF ELEVATION FROM THE TURNING SPACE TO THE SIDEWALK. WHERE TERRAIN IS SLOPING A RAMP IS NOT REQUIRED TO CHASE GRADE MORE THAN 15 FT. REGARDLESS OF THE RESULTING RAMP SLOPE.

(9) GUTTER COUNTER SLOPE - 5.0% MAX.

TYPE 2 PARALLEL CURB RAMPS

CURB RAMPS — STANDARD PLAN NO. M-608-1 — Standard Sheet No. 4 of 10
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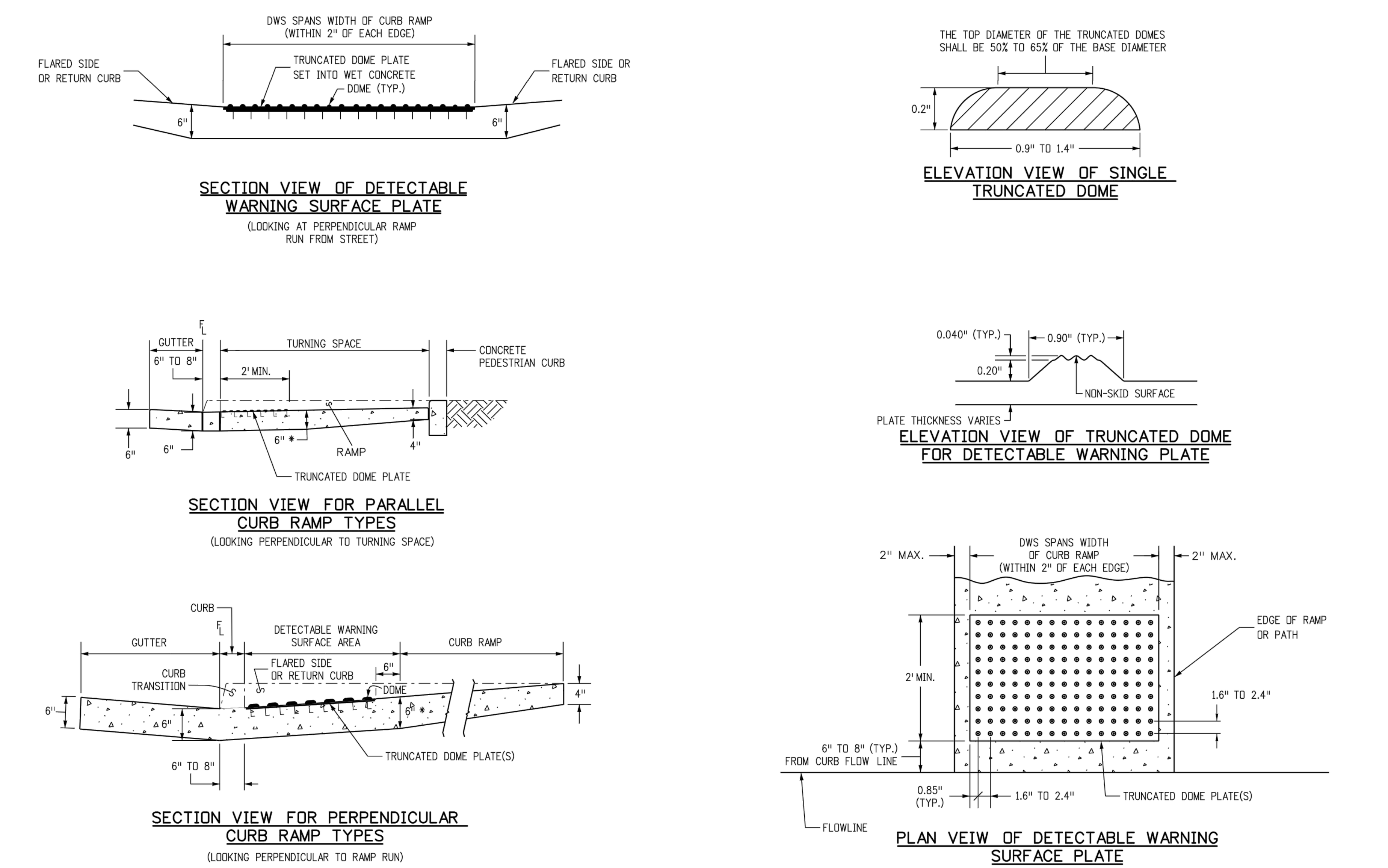

SECTION VIEW OF DETECTABLE WARNING SURFACE PLATE
(LOOKING AT PERPENDICULAR RAMP RUN FROM STREET)
ELEVATION VIEW OF SINGLE TRUNCATED DOME
SECTION VIEW FOR PARALLEL CURB RAMP TYPES
(LOOKING PERPENDICULAR TO TURNING SPACE)
ELEVATION VIEW OF TRUNCATED DOME FOR DETECTABLE WARNING PLATE
SECTION VIEW FOR PERPENDICULAR CURB RAMP TYPES
(LOOKING PERPENDICULAR TO RAMP RUN)
PLAN VEIW OF DETECTABLE WARNING SURFACE PLATE

DETECTABLE WARNING SURFACE DETAILS

CURB RAMPS — STANDARD PLAN NO. M-608-1 — Standard Sheet No. 10 of 10
Issued by the Project Development Branch: July 31, 2019
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CHANDLER, AZ 85226
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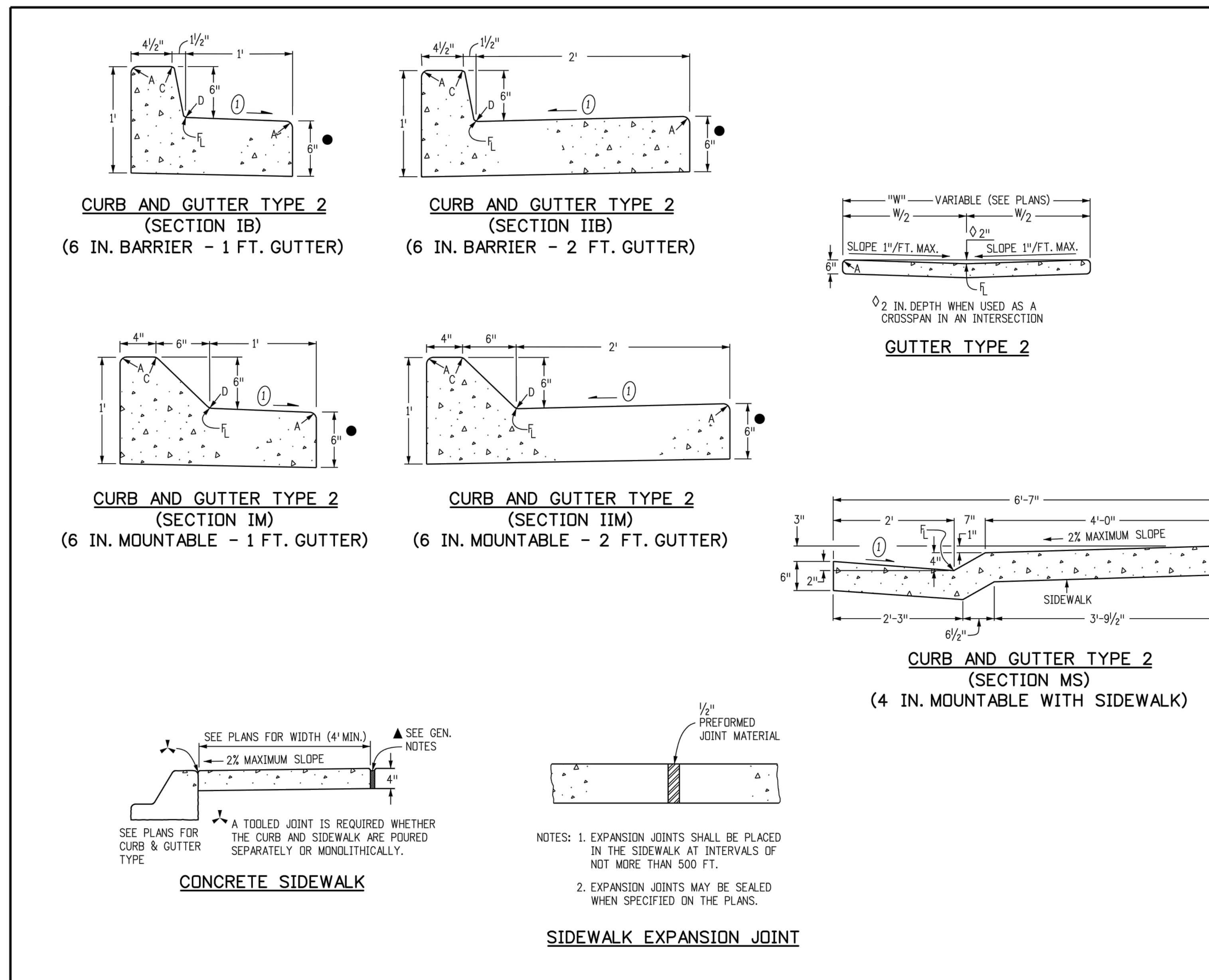


GENERAL NOTES

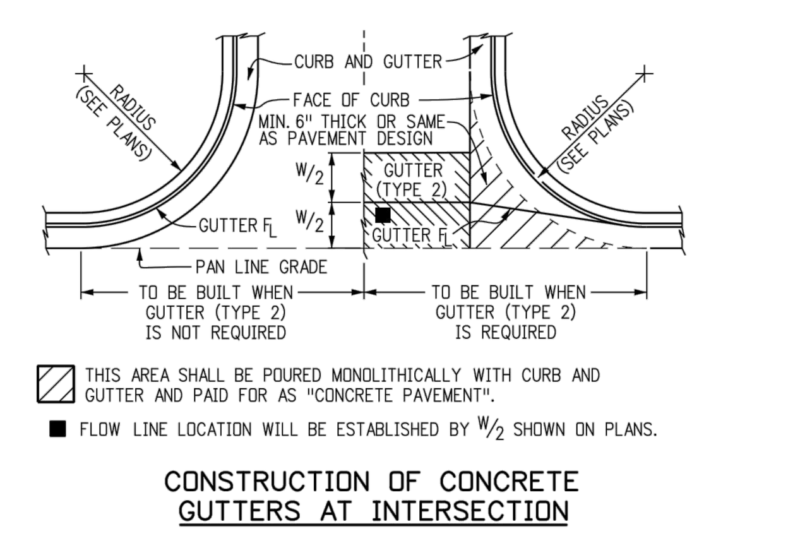
1. ON ROADWAY CURVES WITH A RADIUS OF 1,900 FT. OR LESS, CURBS AND GUTTERS ARE TO BE PLACED ON THE ARC OF THE CURVE, UNLESS OTHERWISE NOTED ON THE PLANS. A MAXIMUM CHORD LENGTH OF 10 FT. MAY BE USED WHEN THE CURVE RADIUS IS GREATER THAN 1,900 FT.
2. CONCRETE SHALL BE CLASS B.
3. PROFILE GRADE OF CURBS AND GUTTERS SHALL BE LOCATED AT THE FLOW LINE.
4. CURB TYPE 4 (KEY-WAY) MAY BE USED IN LIEU OF CURB AND GUTTER TYPE 2 (SECTIONS IB AND IM) UNLESS OTHERWISE SPECIFIED ON THE PLANS.
5. GUTTER CROSS SLOPES MAY BE ADJUSTED TO FACILITATE DRAINAGE FOR PROFILE GRADES AS SHOWN ON THE PLANS.
6. THICKNESS OF CURB AND GUTTER SECTION SHALL MATCH CONCRETE PAVEMENT THICKNESS IF SHOWN ON THE PLANS. CURB AND GUTTER SHALL BE CLASS P CONCRETE IF PLACED MONOLITHICALLY WITH CONCRETE PAVEMENT.
7. INCREASE SIDEWALK THICKNESS TO 6 IN. AT LOCATIONS SHOWN ON THE PLANS.
8. MINIMUM SIDEWALK WIDTH IS 4 FT.

▲ EXPANSION JOINTS SHALL BE INSTALLED WHEN ABUTTING EXISTING CONCRETE OR FIXED STRUCTURE. EXPANSION JOINT MATERIAL SHALL BE 1/2 IN. THICK AND SHALL EXTEND THE FULL DEPTH OF CONTACT SURFACE.

(1) GUTTER CROSS SLOPES SHALL BE 1/2 IN./FT. WHEN DRAINING AWAY FROM CURB AND 1 IN./FT. WHEN DRAINING TOWARD CURB (WITH EXCEPTION TO IMMEDIATELY ADJACENT TO CURB RAMPS - SEE STANDARD PLAN M-608-1 FOR SLOPE REQUIREMENTS).

● WHEN TIE BARS ARE REQUIRED, THE GUTTER THICKNESS SHALL BE INCREASED TO THE PAVEMENT THICKNESS (T). BARS SHALL BE EPOXY-COATED #4 CONFORMING TO AASHTO M 284 AND SPACED AT 3 FT. INTERVALS. THEY SHALL BE INSERTED T/2 AND 1#2 LENGTH INTO THE GUTTER.

LEGEND FOR RADII
A = 1/8" TO 1/4"
B = 1"
C = 1 1/2"
D = 1 1/2" TO 2"



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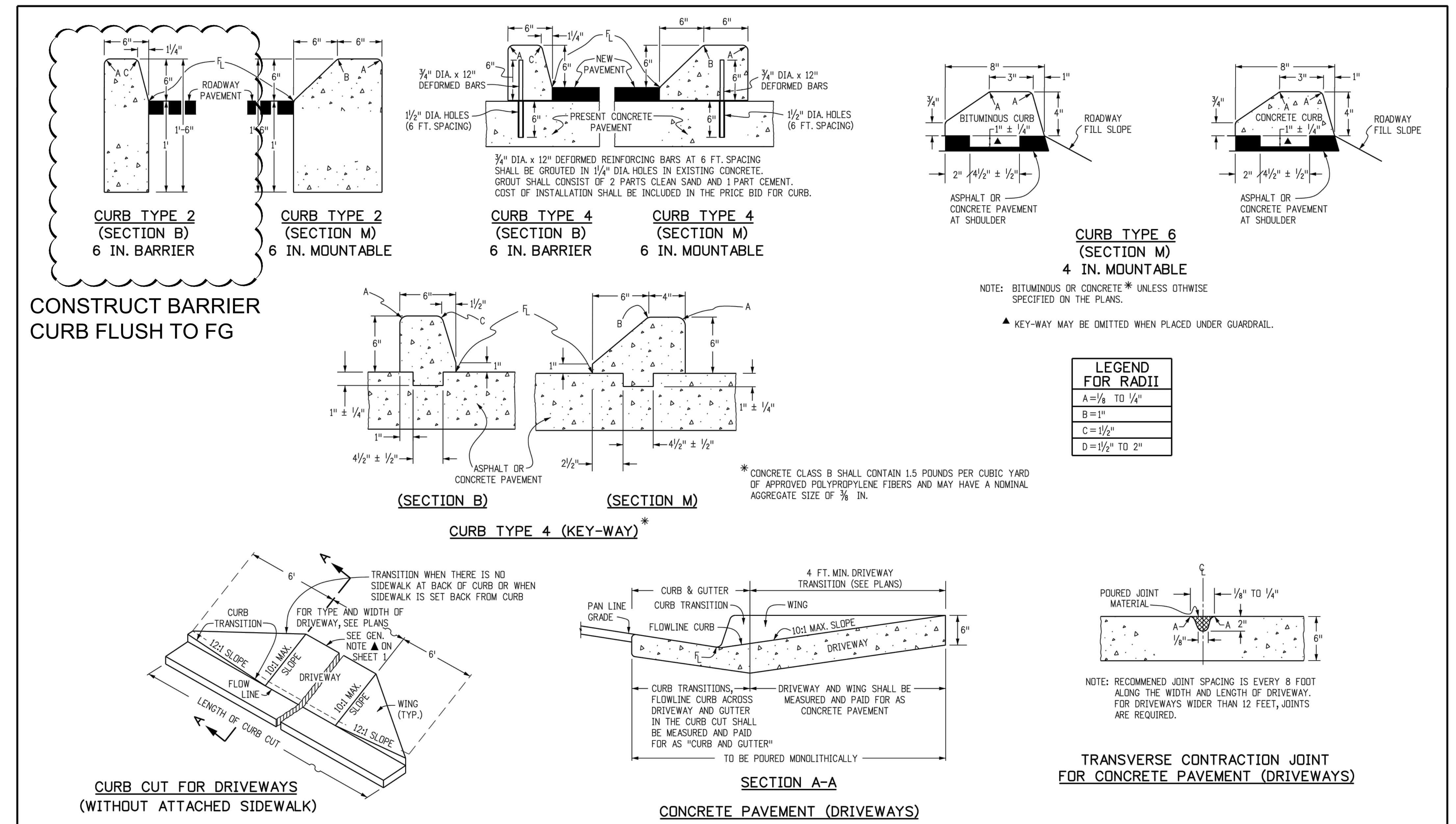
Creation Date: 07/31/19	Date: / Comments	2829 West Howard Place, CDOT HQ, 3rd Floor, Denver, CO 80204, Phone: 303-757-9021 FAX: 303-757-9868	CURB, GUTTERS, AND SIDEWALKS	STANDARD PLAN NO. M-609-1
Designer Initials: JBK				Standard Sheet No. 1 of 4
Last Modification Date: 07/31/19		Project Development Branch JBK	Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:
Detailer Initials: LTA				
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English				



LEGEND FOR RADII
A = 1/8" TO 1/4"
B = 1"
C = 1 1/2"
D = 1 1/2" TO 2"

Computer File Information	Sheet Revisions	Colorado Department of Transportation		
Creation Date: 07/31/19	Date: / Comments	2829 West Howard Place, CDOT HQ, 3rd Floor, Denver, CO 80204, Phone: 303-757-9021 FAX: 303-757-9868	CURB, GUTTERS, AND SIDEWALKS	STANDARD PLAN NO. M-609-1
Designer Initials: JBK				Standard Sheet No. 2 of 4
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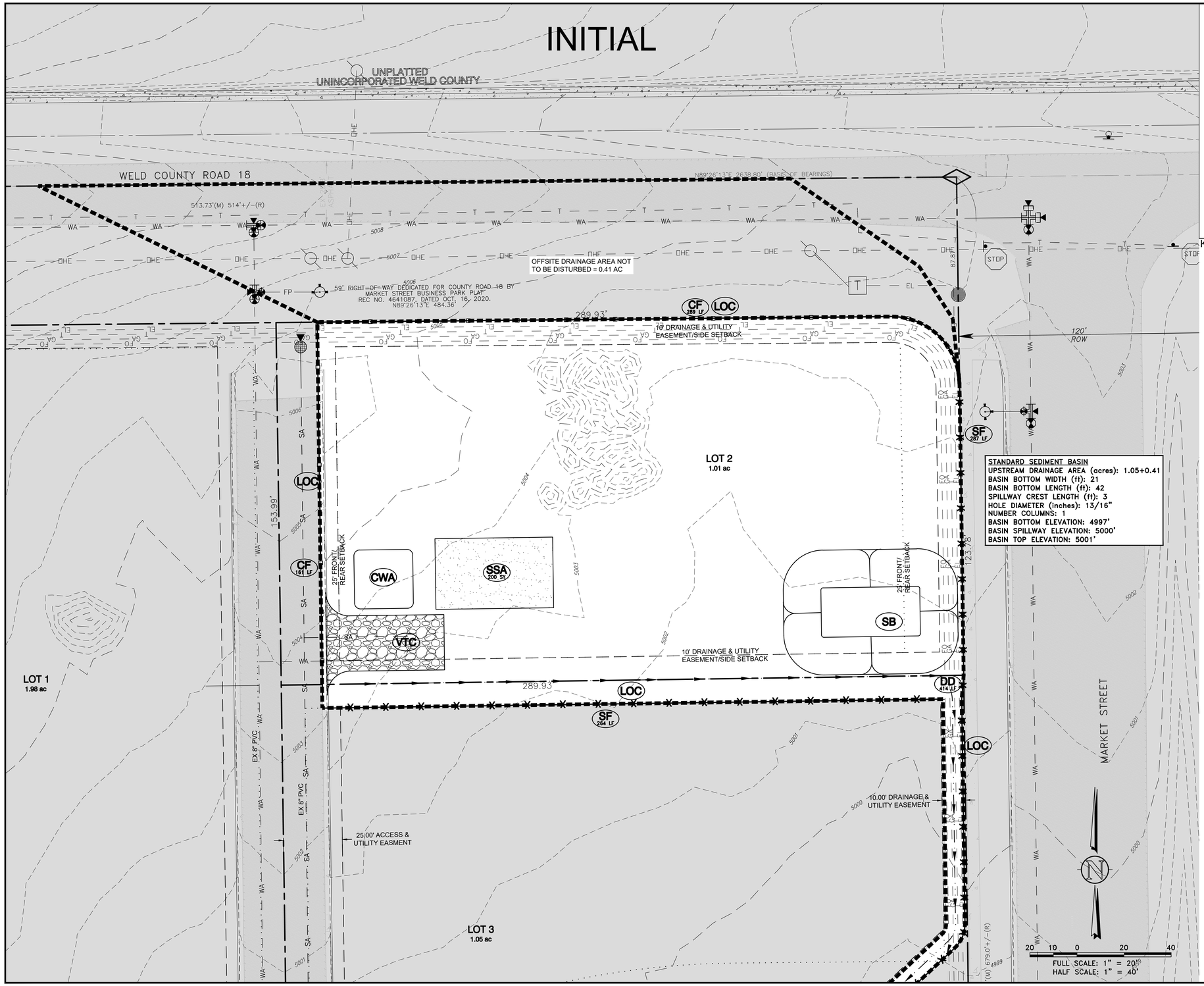
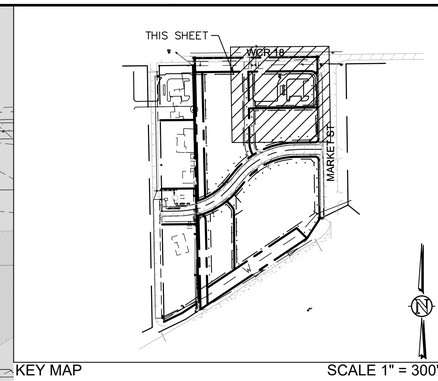


STANDARD SEDIMENT BASIN
UPSTREAM DRAINAGE AREA (acres): 1.05+0.41
BASIN BOTTOM WIDTH (ft): 21
BASIN BOTTOM LENGTH (ft): 42
SPILLWAY CREST LENGTH (ft): 3
HOLE DIAMETER (inches): 13/16"
NUMBER COLUMNS: 1
BASIN BOTTOM ELEVATION: 4997'
BASIN SPILLWAY ELEVATION: 5000'
BASIN TOP ELEVATION: 5001'

20 10 0 20 40
FULL SCALE: 1" = 20'
HALF SCALE: 1" = 40'



KEY MAP SCALE 1" = 300'

BMP LEGEND

CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
CM	CONSTRUCTION MARKER
CIP	CULVERT INLET PROTECTION
DC	WIND EROSION & DUST CONTROL
DS	DRAINAGE SWALE
GH	GOOD HOUSEKEEPING PRACTICE
IP	INLET PROTECTION
PS	PERMANENT SEEDING
RS	ROCK SOCK
SB	SEDIMENT BASIN
SCL	SEDIMENT CONTROL LOG
SF	SILT FENCE
SS	STREET SWEEPING VACUMMING
SSA	STABILIZED STAGING AREA
SP	STOCK PILE
TOP	TEMPORARY OUTLET PROTECTION
VB	VEGETATED BUFFER
VTC	VEHICLE TRACKING CONTROL

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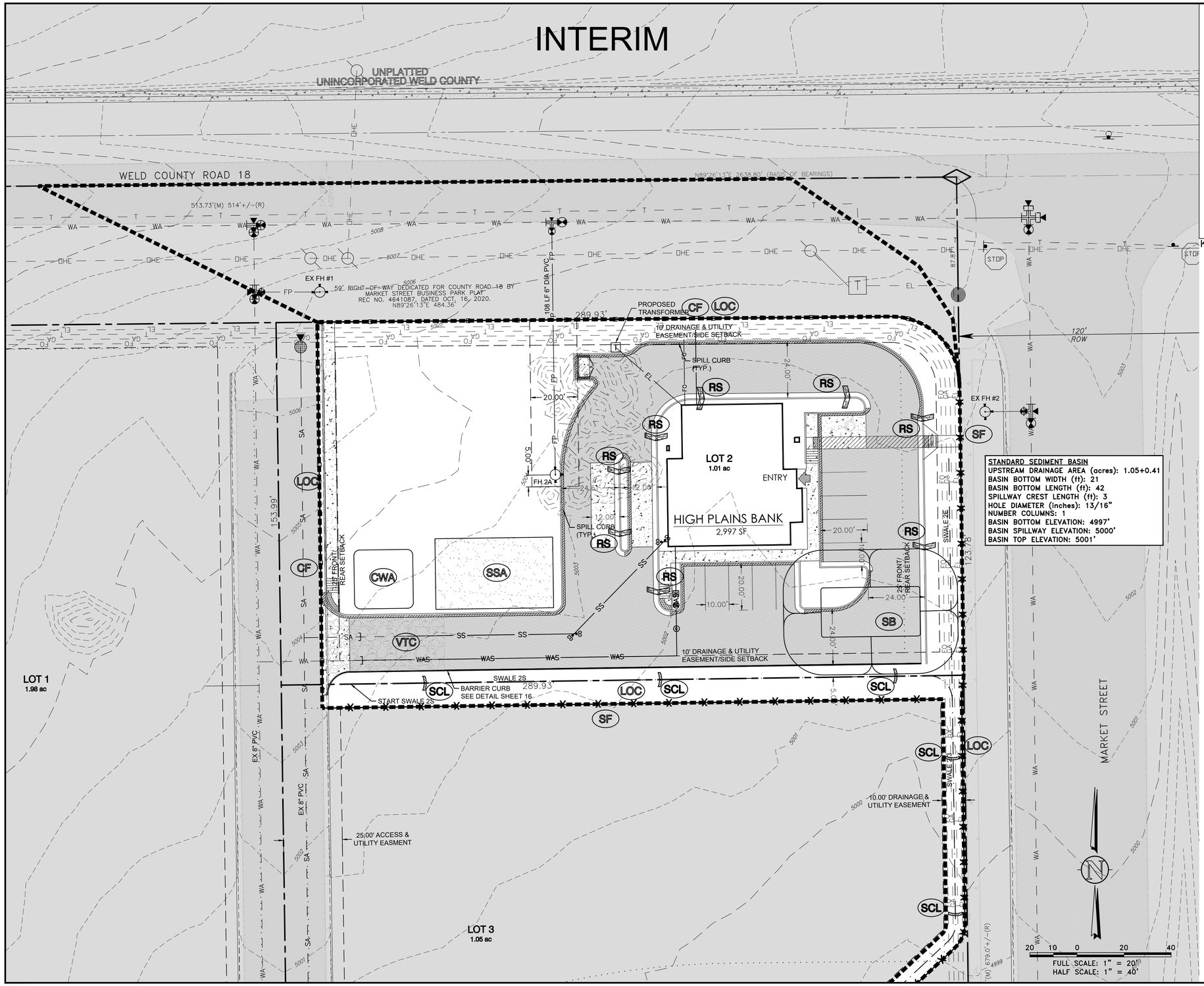
INTERIM



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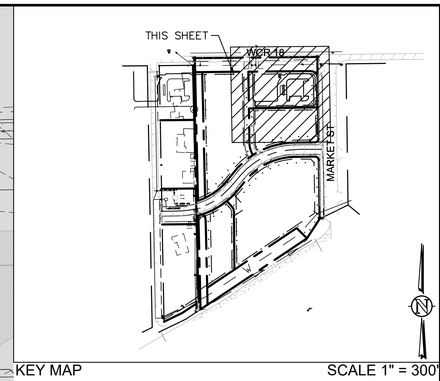

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HALF SCALE: 1" = 40'

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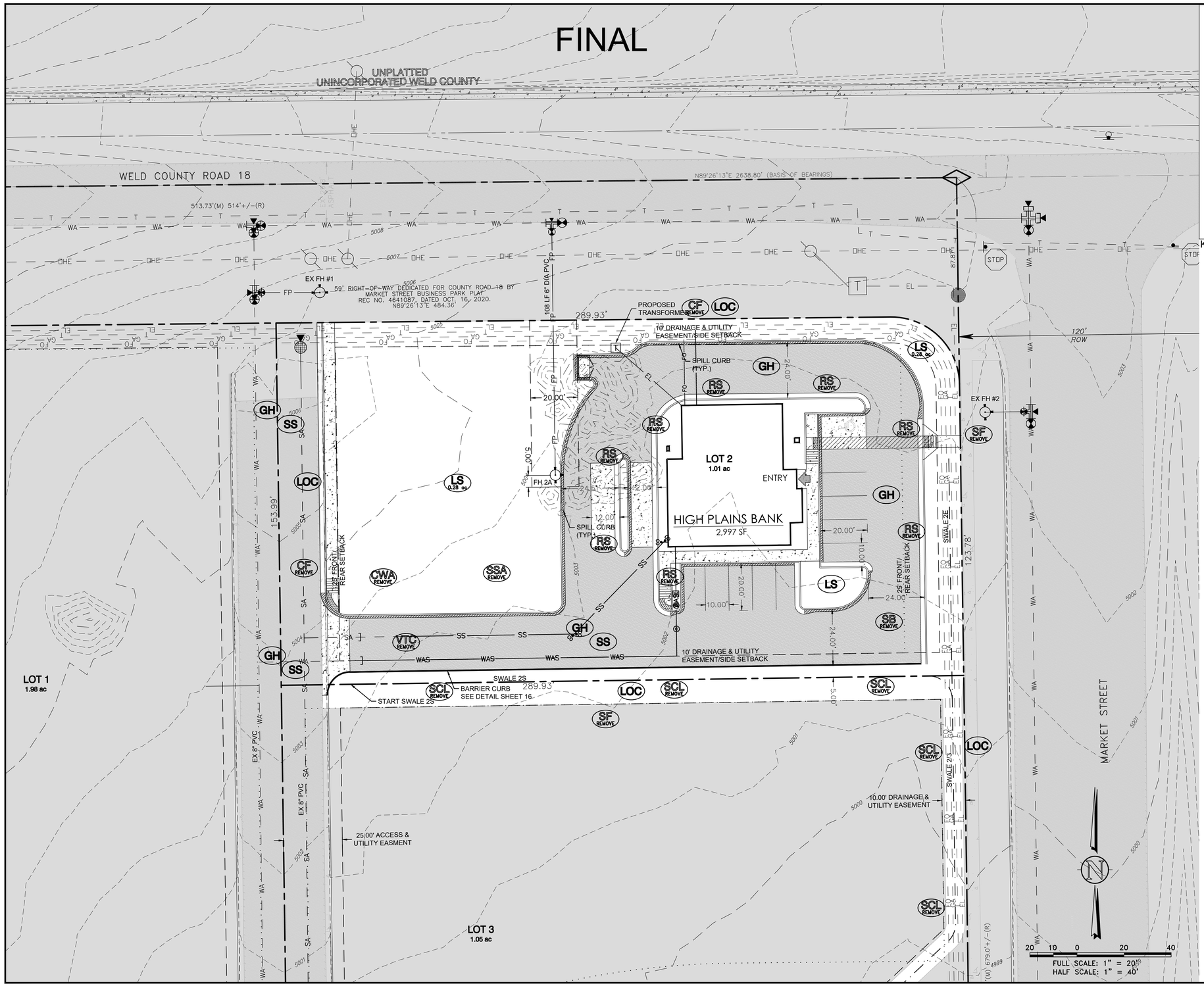
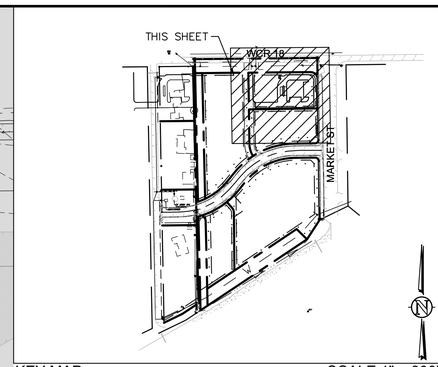
FINAL





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Description

Photograph ED/DS-1. Example of an earth dike used to divert flows at a construction site. Photo courtesy of CDOT.

Earth dikes and drainage swales are temporary storm conveyance channels constructed either to divert runoff around slopes or to convey runoff to additional sediment control BMPs prior to discharge of runoff from a site. Drainage swales may be lined or unlined, but if an unlined swale is used, it must be well compacted and capable of resisting erosive velocities.

Appropriate Uses

Earth dikes and drainage swales are typically used to control the flow path of runoff at a construction site by diverting runoff around areas prone to erosion, such as steep slopes. Earth dikes and drainage swales may also be constructed as temporary conveyance features. This will direct runoff to additional sediment control treatment BMPs, such as sediment traps or basins.

Design and Installation

When earth dikes are used to divert water for slope protection, the earth dike typically consists of a horizontal ridge of soil placed perpendicular to the slope and angled slightly to provide drainage along the contour. The dike is used in conjunction with a swale or a small channel upslope of the berm to convey the diverted water. Temporary diversion dikes can be constructed by excavation of a V-shaped trench or ditch and placement of the fill on the downslope side of the cut. There are two types of placement for temporary slope diversion dikes:

- A dike located at the top of a slope to divert upland runoff away from the disturbed area and convey it in a temporary or permanent channel.
- A diversion dike located at the base or mid-slope of a disturbed area to intercept runoff and reduce the effective slope length.

Depending on the project, either an earth dike or drainage swale may be more appropriate. If there is a need for cut on the project, then an excavated drainage swale may be better suited. When the project is primarily fill, then a conveyance constructed using a berm may be the better option.

All dikes or swales receiving runoff from a disturbed area should direct stormwater to a sediment control BMP such as a sediment trap or basin.

Earth Dikes and Drainage Swales	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

Unlined dikes or swales should only be used for intercepting sheet flow runoff and are not intended for diversion of concentrated flows.

Details with notes are provided for several design variations, including:

ED-1. Unlined Earth Dike formed by Berm

DS-1. Unlined Excavated Swale

DS-2. Unlined Swale Formed by Cut and Fill

DS-3. ECB-lined Swale

DS-4. Synthetic-lined Swale

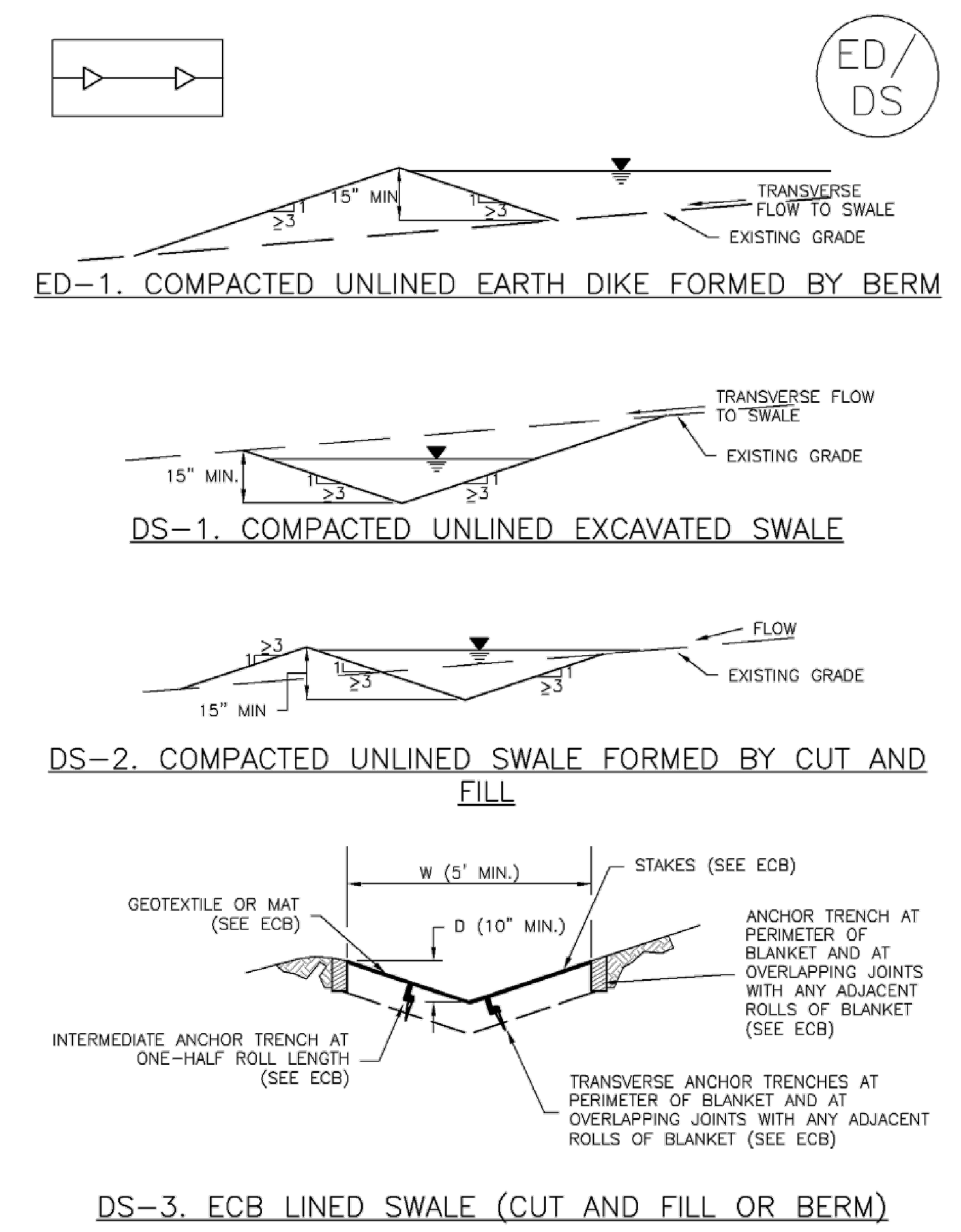
DS-5. Riprap-lined Swale

The details also include guidance on permissible velocities for cohesive channels if unlined approaches will be used.

Maintenance and Removal

Inspect earth dikes for stability, compaction, and signs of erosion and repair. Inspect side slopes for erosion and damage to erosion control fabric. Stabilize slopes and repair fabric as necessary. If there is reoccurring extensive damage, consider installing rock check dams or lining the channel with riprap.

If drainage swales are not permanent, remove dikes and fill channels when the upstream area is stabilized. Stabilize the fill or disturbed area immediately following removal by revegetation or other permanent stabilization method approved by the local jurisdiction.



EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.

5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

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

Description

Photograph CWA-1. Example of concrete washout area. Note gravel tracking pad for access and sign.

Concrete waste management involves designating and properly managing a specific area of the construction site as a concrete washout area. A concrete washout area can be created using one of several approaches designed to receive wash water from washing of tools and concrete mixer chutes, liquid concrete waste from dump trucks, mobile batch mixers, or pump trucks. Three basic approaches are available: excavation of a pit in the ground, use of an above ground storage area, or use of prefabricated haul-away concrete washout containers. Surface discharges of concrete washout water from construction sites are prohibited.

Appropriate Uses

Concrete washout areas must be designated on all sites that will generate concrete wash water or liquid concrete waste from onsite concrete mixing or concrete delivery.

Because pH is a pollutant of concern for washout activities, when unlined pits are used for concrete washout, the soil must have adequate buffering capacity to result in protection of state groundwater standards; otherwise, a liner/containment must be used. The following management practices are recommended to prevent an impact from unlined pits to groundwater:

- The use of the washout site should be temporary (less than 1 year), and
- The washout site should be not be located in an area where shallow groundwater may be present, such as near natural drainages, springs, or wetlands.

Design and Installation

Concrete washout activities must be conducted in a manner that does not contribute pollutants to surface waters or stormwater runoff. Concrete washout areas may be lined or unlined excavated pits in the ground, commercially manufactured prefabricated washout containers, or aboveground holding areas constructed of berms, sandbags or straw bales with a plastic liner.

Although unlined washout areas may be used, lined pits may be required to protect groundwater under certain conditions.

Do not locate an unlined washout area within 400 feet of any natural drainage pathway or waterbody or within 1,000 feet of any wells or drinking water sources. Even for lined concrete washouts, it is advisable to locate the facility away from waterbodies and drainage paths. If site constraints make these

Concrete Washout Area	
Functions	
Erosion Control	No
Sediment Control	No
Site/Material Management	Yes

setbacks infeasible or if highly permeable soils exist in the area, then the pit must be installed with an impermeable liner (16 mil minimum thickness) or surface storage alternatives using prefabricated concrete washout devices or a lined aboveground storage area should be used.

Design details with notes are provided in Detail CWA-1 for pits and CWA-2 for aboveground storage areas. Pre-fabricated concrete washout container information can be obtained from vendors.

Maintenance and Removal

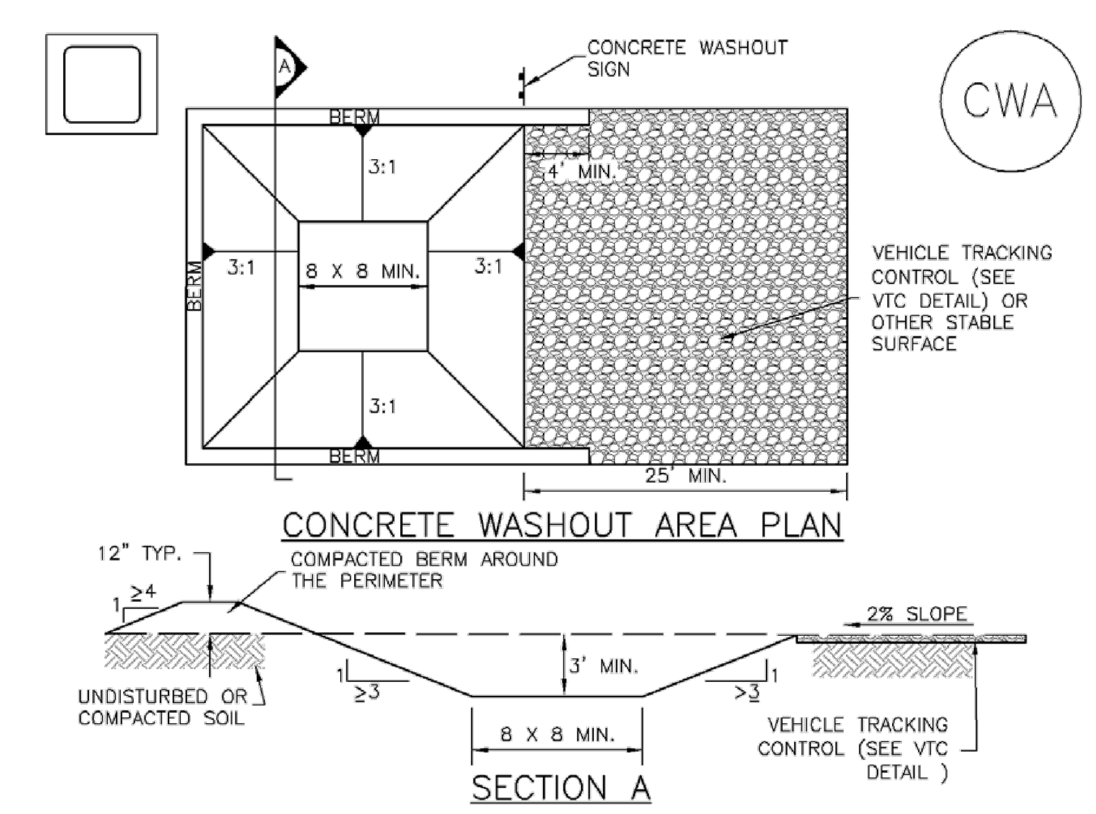
A key consideration for concrete washout areas is to ensure that adequate signage is in place identifying the location of the washout area. Part of inspecting and maintaining washout areas is ensuring that adequate signage is provided and in good repair and that the washout area is being used, as opposed to washout in non-designated areas of the site.

Remove concrete waste in the washout area, as needed to maintain BMP function (typically when filled to about two-thirds of its capacity). Collect concrete waste and deliver offsite to a designated disposal location.

Upon termination of use of the washout site, accumulated solid waste, including concrete waste and any contaminated soils, must be removed from the site to prevent on-site disposal of solid waste. If the wash water is allowed to evaporate and the concrete hardens, it may be recycled.

Photograph CWA-2. Prefabricated concrete washout. Photo courtesy of CDOT.

Photograph CWA-3. Earthen concrete washout. Photo courtesy of CDOT.



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -CWA INSTALLATION LOCATION.

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

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

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

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

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

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

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

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

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

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

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

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

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Description

Photographs GH-1 and GH-2. Proper materials storage and secondary containment for fuel tanks are important good housekeeping practices. Photos courtesy of CDOT and City of Aurora.

Implement construction site good housekeeping practices to prevent pollution associated with solid, liquid and hazardous construction-related materials and wastes. Stormwater Management Plans (SWMPs) should clearly specify BMPs including these good housekeeping practices:

- Provide for waste management.
- Establish proper building material staging areas.
- Designate paint and concrete washout areas.
- Establish proper equipment/vehicle fueling and maintenance practices.
- Control equipment/vehicle washing and allowable non-stormwater discharges.
- Develop a spill prevention and response plan.

Acknowledgement: This Fact Sheet is based directly on EPA guidance provided in *Developing Your Stormwater Pollution Prevent Plan* (EPA 2007).

Appropriate Uses

Good housekeeping practices are necessary at all construction sites.

Design and Installation

The following principles and actions should be addressed in SWMPs:

- **Provide for Waste Management.** Implement management procedures and practices to prevent or reduce the exposure and transport of pollutants in stormwater from solid, liquid and sanitary wastes that will be generated at the site. Practices such as trash disposal, recycling, proper material handling, and cleanup measures can reduce the potential for stormwater runoff to pick up construction site wastes and discharge them to surface waters. Implement a comprehensive set of waste-management practices for hazardous or toxic materials, such as paints, solvents, petroleum products, pesticides, wood preservatives, acids, roofing tar, and other materials. Practices should include storage, handling, inventory, and cleanup procedures, in case of spills. Specific practices that should be considered include:

  Solid or Construction Waste

  - Designate trash and bulk waste-collection areas on-site.

Good Housekeeping	
Functions	
Erosion Control	No
Sediment Control	No
Site/Material Management	Yes

  - Recycle materials whenever possible (e.g., paper, wood, concrete, oil).
  - Segregate and provide proper disposal options for hazardous material wastes.
  - Clean up litter and debris from the construction site daily.
  - Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters, and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to minimize the likelihood of contaminated discharges.
  - Empty waste containers before they are full and overflowing.

  Sanitary and Septic Waste

  - Provide convenient, well-maintained, and properly located toilet facilities on-site.
  - Locate toilet facilities away from storm drain inlets and waterways to prevent accidental spills and contamination of stormwater.
  - Maintain clean restroom facilities and empty portable toilets regularly.
  - Where possible, provide secondary containment pans under portable toilets.
  - Provide tie-downs or stake-downs for portable toilets.
  - Educate employees, subcontractors, and suppliers on locations of facilities.
  - Treat or dispose of sanitary and septic waste in accordance with state or local regulations. Do not discharge or bury wastewater at the construction site.
  - Inspect facilities for leaks. If found, repair or replace immediately.
  - Special care is necessary during maintenance (pump out) to ensure that waste and/or biocide are not spilled on the ground.

  Hazardous Materials and Wastes

  - Develop and implement employee and subcontractor education, as needed, on hazardous and toxic waste handling, storage, disposal, and cleanup.
  - Designate hazardous waste-collection areas on-site.
  - Place all hazardous and toxic material wastes in secondary containment.

Photograph GH-3. Locate portable toilet facilities on level surfaces away from waterways and storm drains. Photo courtesy of WWE.

  - Hazardous waste containers should be inspected to ensure that all containers are labeled properly and that no leaks are present.

- **Establish Proper Building Material Handling and Staging Areas**. The SWMP should include comprehensive handling and management procedures for building materials, especially those that are hazardous or toxic. Paints, solvents, pesticides, fuels and oils, other hazardous materials or building materials that have the potential to contaminate stormwater should be stored indoors or under cover whenever possible or in areas with secondary containment. Secondary containment measures prevent a spill from spreading across the site and may include dikes, berms, curbing, or other containment methods. Secondary containment techniques should also ensure the protection of groundwater. Designate staging areas for activities such as fueling vehicles, mixing paints, plaster, mortar, and other potential pollutants. Designated staging areas enable easier monitoring of the use of materials and clean up of spills. Training employees and subcontractors is essential to the success of this pollution prevention principle. Consider the following specific materials handling and staging practices:
  - Train employees and subcontractors in proper handling and storage practices.
  - Clearly designate site areas for staging and storage with signs and on construction drawings. Staging areas should be located in areas central to the construction site. Segment the staging area into sub-areas designated for vehicles, equipment, or stockpiles. Construction entrances and exits should be clearly marked so that delivery vehicles enter/exit through stabilized areas with vehicle tracking controls (See Vehicle Tracking Control Fact Sheet).
  - Provide storage in accordance with Spill Protection, Control and Countermeasures (SPCC) requirements and plans and provide cover and impermeable perimeter control, as necessary, for hazardous materials and contaminated soils that must be stored on site.
  - Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or other signs of deterioration and tested for soundness.
  - Reuse and recycle construction materials when possible.
- **Designate Concrete Washout Areas**. Concrete contractors should be encouraged to use the washout facilities at their own plants or dispatch facilities when feasible; however, concrete washout commonly occurs on construction sites. If it is necessary to provide for concrete washout areas on-site, designate specific washout areas and design facilities to handle anticipated washout water. Washout areas should also be provided for paint and stucco operations. Because washout areas can be a source of pollutants from leaks or spills, care must be taken with regard to their placement and proper use. See the Concrete Washout Area Fact Sheet for detailed guidance.

  Both self-constructed and prefabricated washout containers can fill up quickly when concrete, paint, and stucco work are occurring on large portions of the site. Be sure to check for evidence that contractors are using the washout areas and not dumping materials onto the ground or into drainage facilities. If the washout areas are not being used regularly, consider posting additional signage, relocating the facilities to more convenient locations, or providing training to workers and contractors.

  When concrete, paint, or stucco is part of the construction process, consider these practices which will help prevent contamination of stormwater. Include the locations of these areas and the maintenance and inspection procedures in the SWMP.

  - Do not washout concrete trucks or equipment into storm drains, streets, gutters, uncontained areas, or streams. Only use designated washout areas.
  - Establish washout areas and advertise their locations with signs. Ensure that signage remains in good repair.
  - Provide adequate containment for the amount of wash water that will be used.
  - Inspect washout structures daily to detect leaks or tears and to identify when materials need to be removed.
  - Dispose of materials properly. The preferred method is to allow the water to evaporate and to recycle the hardened concrete. Full service companies may provide dewatering services and should dispose of wastewater properly. Concrete wash water can be highly polluted. It should not be discharged to any surface water, storm sewer system, or allowed to infiltrate into the ground in the vicinity of waterbodies. Washwater should not be discharged to a sanitary sewer system without first receiving written permission from the system operator.
- **Establish Proper Equipment/Vehicle Fueling and Maintenance Practices**. Create a clearly designated on-site fueling and maintenance area that is clean and dry. The on-site fueling area should have a spill kit, and staff should know how to use it. If possible, conduct vehicle fueling and maintenance activities in a covered area. Consider the following practices to help prevent the discharge of pollutants to stormwater from equipment/vehicle fueling and maintenance. Include the locations of designated fueling and maintenance areas and inspection and maintenance procedures in the SWMP.
  - Train employees and subcontractors in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shutoff valves, etc.).
  - Inspect on-site vehicles and equipment regularly for leaks, equipment damage, and other service problems.
  - Clearly designate vehicle/equipment service areas away from drainage facilities and watercourses to prevent stormwater run-on and runoff.
  - Use drip pans, drip cloths, or absorbent pads when replacing spent fluids.
  - Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible.
- **Control Equipment/Vehicle Washing and Allowable Non-Stormwater Discharges.** Implement practices to prevent contamination of surface and groundwater from equipment and vehicle wash water. Representative practices include:
  - Educate employees and subcontractors on proper washing procedures.
  - Use off-site washing facilities, when available.
  - Clearly mark the washing areas and inform workers that all washing must occur in this area.
  - Contain wash water and treat it using BMPs. Infiltrate washwater when possible, but maintain separation from drainage paths and waterbodies.

  - Use high-pressure water spray at vehicle washing facilities without detergents. Water alone can remove most dirt adequately.
  - Do not conduct other activities, such as vehicle repairs, in the wash area.
  - Include the location of the washing facilities and the inspection and maintenance procedures in the SWMP.
- **Develop a Spill Prevention and Response Plan.** Spill prevention and response procedures must be identified in the SWMP. Representative procedures include identifying ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and response. The plan should also specify material handling procedures and storage requirements and ensure that clear and concise spill cleanup procedures are provided and posted for areas in which spills may potentially occur. When developing a spill prevention plan, include the following:
  - Note the locations of chemical storage areas, storm drains, tributary drainage areas, surface waterbodies on or near the site, and measures to stop spills from leaving the site.
  - Provide proper handling and safety procedures for each type of waste. Keep Material Safety Data Sheets (MSDSs) for chemical used on site with the SWMP.
  - Establish an education program for employees and subcontractors on the potential hazards to humans and the environment from spills and leaks.
  - Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or municipal sewage treatment facilities to request assistance. Emergency procedures and contact numbers should be provided in the SWMP and posted at storage locations.
  - Describe the procedures, equipment and materials for immediate cleanup of spills and proper disposal.
  - Identify personnel responsible for implementing the plan in the event of a spill. Update the spill prevention plan and clean up materials as changes occur to the types of chemicals stored and used at the facility.

Spill Prevention, Control, and Countermeasure (SPCC) Plan

Construction sites may be subject to 40 CFR Part 112 regulations that require the preparation and implementation of a SPCC Plan to prevent oil spills from aboveground and underground storage tanks. The facility is subject to this rule if it is a non-transportation-related facility that:

- Has a total storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons.
- Could reasonably be expected to discharge oil in quantities that may be harmful to navigable waters of the United States and adjoining shorelines.

Furthermore, if the facility is subject to 40 CFR Part 112, the SWMP should reference the SPCC Plan. To find out more about SPCC Plans, see EPA's website on SPPC at www.epa.gov/oilspill/spcc.htm.

Reporting Oil Spills

In the event of an oil spill, contact the National Response Center toll free at 1-800-424- 8802 for assistance, or for more details, visit their website: www.nrc.uscg.mil.

Maintenance and Removal

Effective implementation of good housekeeping practices is dependent on clear designation of personnel responsible for supervising and implementing good housekeeping programs, such as site cleanup and disposal of trash and debris, hazardous material management and disposal, vehicle and equipment maintenance, and other practices. Emergency response "drills" may aid in emergency preparedness.

Checklists may be helpful in good housekeeping efforts.

Staging and storage areas require permanent stabilization when the areas are no longer being used for construction-related activities.

Construction-related materials, debris and waste must be removed from the construction site once construction is complete.

Design Details

See the following Fact Sheets for related Design Details:

MM-1 Concrete Washout Area

MM-2 Stockpile Management

SM-4 Vehicle Tracking Control

Design details are not necessary for other good housekeeping practices; however, be sure to designate where specific practices will occur on the appropriate construction drawings.

Description

A silt fence is a woven geotextile fabric attached to wooden posts and trenched into the ground. It is designed as a sediment barrier to intercept sheet flow runoff from disturbed areas.

Photograph SF-1. Silt fence creates a sediment barrier, forcing sheet flow runoff to evaporate or infiltrate.

Appropriate Uses

A silt fence can be used where runoff is conveyed from a disturbed area as sheet flow. Silt fence is not designed to receive concentrated flow or to be used as a filter fabric. Typical uses include:

- Down slope of a disturbed area to accept sheet flow.
- Along the perimeter of a receiving water such as a stream, pond or wetland.
- At the perimeter of a construction site.

Design and Installation

Silt fence should be installed along the contour of slopes so that it intercepts sheet flow. The maximum recommended tributary drainage area per 100 lineal feet of silt fence, installed along the contour, is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures. This recommendation only applies to silt fence installed along the contour. Silt fence installed for other uses, such as perimeter control, should be installed in a way that will not produce concentrated flows. For example, a "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate in multiple areas rather than concentrate and cause erosive conditions parallel to the silt fence.

See Detail SF-1 for proper silt fence installation, which involves proper trenching, staking, securing the fabric to the stakes, and backfilling the silt fence. Properly installed silt fence should not be easily pulled out by hand and there should be no gaps between the ground and the fabric.

Silt fence must meet the minimum allowable strength requirements, depth of installation requirement, and other specifications in the design details. Improper installation of silt fence is a common reason for silt fence failure; however, when properly installed and used for the appropriate purposes, it can be highly effective.

Silt Fence	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No

Maintenance and Removal

Inspection of silt fence includes observing the material for tears or holes and checking for slumping fence and undercut areas bypassing flows. Repair of silt fence typically involves replacing the damaged section with a new section. Sediment accumulated behind silt fence should be removed, as needed to maintain BMP effectiveness, typically before it reaches a depth of 6 inches.

Silt fence may be removed when the upstream area has reached final stabilization.

Photograph SF-2. When silt fence is not installed along the contour, a "J-hook" installation may be appropriate to ensure that the BMP does not create concentrated flow parallel to the silt fence. Photo courtesy of Tom Gore.

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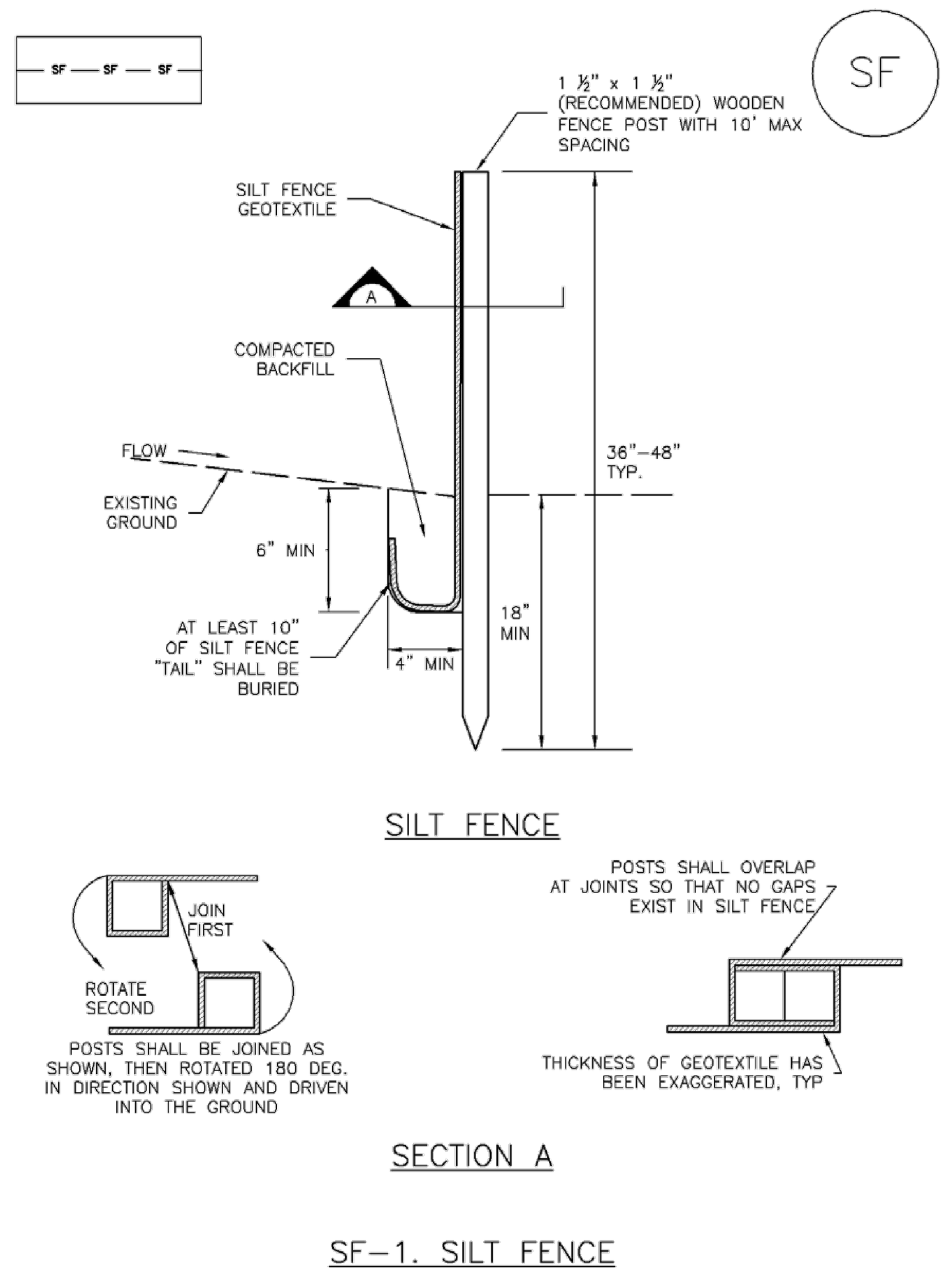


SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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

Description

A rock sock is constructed of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter. Rock socks are typically used either as a perimeter control or as part of inlet protection. When placed at angles in the curb line, rock socks are typically referred to as curb socks. Rock socks are intended to trap sediment from stormwater runoff that flows onto roadways as a result of construction activities.

Photograph RS-1. Rock socks placed at regular intervals in a curb line can help reduce sediment loading to storm sewer inlets. Rock socks can also be used as perimeter controls.

Appropriate Uses

Rock socks can be used at the perimeter of a disturbed area to control localized sediment loading. A benefit of rock socks as opposed to other perimeter controls is that they do not have to be trenched or staked into the ground; therefore, they are often used on roadway construction projects where paved surfaces are present.

Use rock socks in inlet protection applications when the construction of a roadway is substantially complete and the roadway has been directly connected to a receiving storm system.

Design and Installation

When rock socks are used as perimeter controls, the maximum recommended tributary drainage area per 100 lineal feet of rock socks is approximately 0.25 acres with disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. A rock sock design detail and notes are provided in Detail RS-1. Also see the Inlet Protection Fact Sheet for design and installation guidance when rock socks are used for inlet protection and in the curb line.

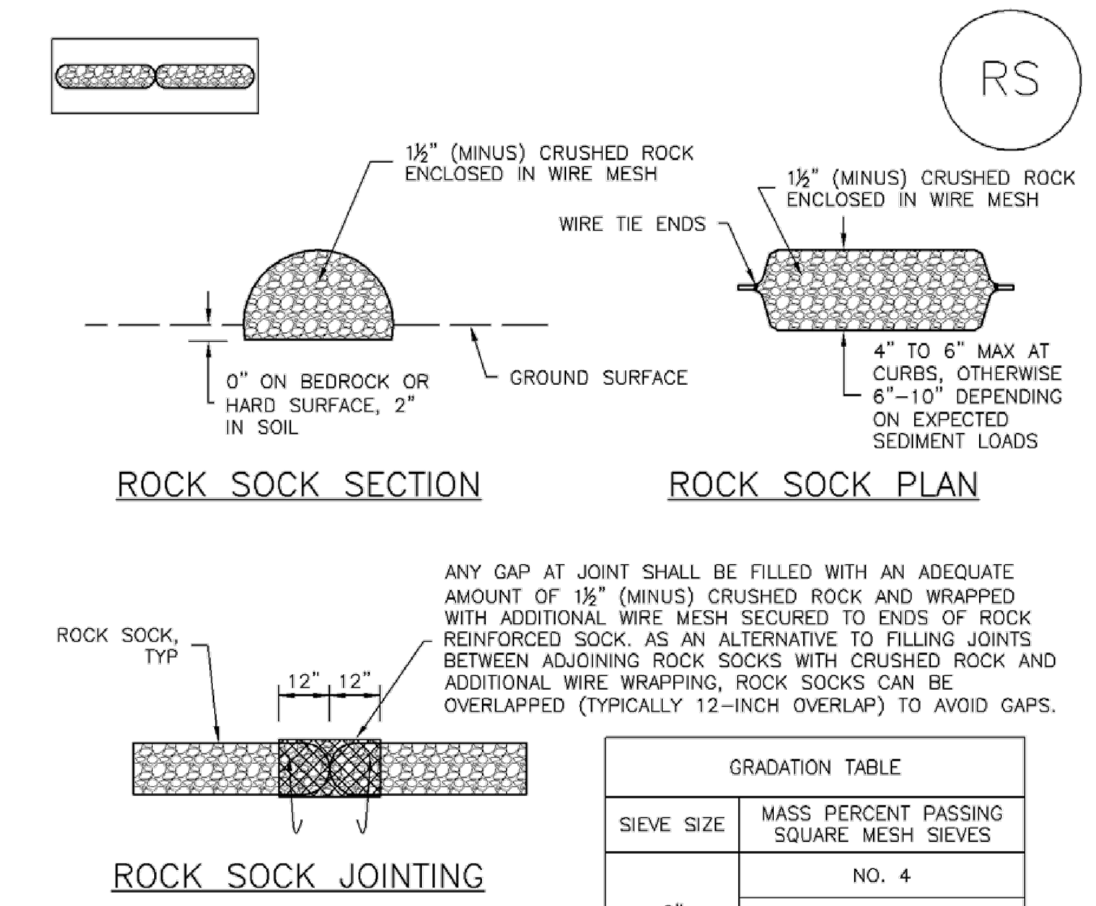
When placed in the gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely. If located in a high traffic area, place construction markers to alert drivers and street maintenance workers of their presence.

Maintenance and Removal

Rock socks are susceptible to displacement and breaking due to vehicle traffic. Inspect rock socks for damage and repair or replace as necessary. Remove sediment by sweeping or vacuuming as needed to maintain the functionality of the BMP, typically when sediment has accumulated behind the rock sock to one-half of the sock's height.

Once upstream stabilization is complete, rock socks and accumulated sediment should be removed and properly disposed.

Rock Sock	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No



GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1½"	90 – 100
1"	20 – 55
¾"	0 – 15
⅜"	0 – 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION(S) OF ROCK SOCKS.

2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).

3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF ½", RECOMMENDED MINIMUM ROLL WIDTH OF 48"

4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS-1. ROCK SOCK PERIMETER CONTROL

ROCK SOCK MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.

5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE ROCK SOCK.

6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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

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

Description

A sediment basin is a temporary pond built on a construction site to capture eroded or disturbed soil transported in storm runoff prior to discharge from the site. Sediment basins are designed to capture site runoff and slowly release it to allow time for settling of sediment prior to discharge. Sediment basins are often constructed in locations that will later be modified to serve as post-construction stormwater basins.

Photograph SB-1. Sediment basin at the toe of a slope. Photo courtesy of WWE.

Appropriate Uses

Most large construction sites (typically greater than 2 acres) will require one or more sediment basins for effective management of construction site runoff. On linear construction projects, sediment basins may be impractical; instead, sediment traps or other combinations of BMPs may be more appropriate.

Sediment basins should not be used as stand-alone sediment controls. Erosion and other sediment controls should also be implemented upstream.

When feasible, the sediment basin should be installed in the same location where a permanent post-construction detention pond will be located.

Design and Installation

The design procedure for a sediment basin includes these steps:

- **Basin Storage Volume**: Provide a storage volume of at least 3,600 cubic feet per acre of drainage area. To the extent practical, undisturbed and/or off-site areas should be diverted around sediment basins to prevent "clean" runoff from mixing with runoff from disturbed areas. For undisturbed areas (both on-site and off-site) that cannot be diverted around the sediment basin, provide a minimum of 500 ft^3/acre of storage for undeveloped (but stable) off-site areas in addition to the 3,600 ft^3/acre for disturbed areas. For stable, developed areas that cannot be diverted around the sediment basin, storage volume requirements are summarized in Table SB-1.
- **Basin Geometry:** Design basin with a minimum length-to-width ratio of 2:1 (L:W). If this cannot be achieved because of site space constraints, baffling may be required to extend the effective distance between the inflow point(s) and the outlet to minimize short-circuiting.
- **Dam Embankment**: It is recommended that embankment slopes be 4:1 (H:V) or flatter and no steeper than 3:1 (H:V) in any location.

Sediment Basins	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No

- **Inflow Structure**: For concentrated flow entering the basin, provide energy dissipation at the point of inflow.

Table SB-1. Additional Volume Requirements for Undisturbed and Developed Tributary Areas Draining through Sediment Basins

Imperviousness (%)	Additional Storage Volume (ft^3) Per Acre of Tributary Area
Undeveloped	500
10	800
20	1230
30	1600
40	2030
50	2470
60	2980
70	3560
80	4360
90	5300
100	6460

- **Outlet Works**: The outlet pipe shall extend through the embankment at a minimum slope of 0.5 percent. Outlet works can be designed using one of the following approaches:
  - **Riser Pipe (Simplified Detail):** Detail SB-1 provides a simplified design for basins treating no more than 15 acres.
  - **Orifice Plate or Riser Pipe**: Follow the design criteria for Full Spectrum Detention outlets in the EDB Fact Sheet provided in Chapter 4 of this manual for sizing of outlet perforations with an emptying time of approximately 72 hours. In lieu of the trash rack, pack uniformly sized 1½ - to 2-inch gravel in front of the plate or surrounding the riser pipe. This gravel will need to be cleaned out frequently during the construction period as sediment accumulates within it. The gravel pack will need to be removed and disposed of following construction to reclaim the basin for use as a permanent detention facility. If the basin will be used as a permanent extended detention basin for the site, a trash rack will need to be installed once contributing drainage areas have been stabilized and the gravel pack and accumulated sediment have been removed.
  - **Floating Skimmer**: If a floating skimmer is used, install it using manufacturer's recommendations. Illustration SB-1 provides an illustration of a Faircloth Skimmer Floating Outlet™, one of the more commonly used floating skimmer outlets. A skimmer should be designed to release the design volume in no less than 48 hours. The use of a floating skimmer outlet can increase the sediment capture efficiency of a basin significantly. A floating outlet continually decants cleanest water off the surface of the pond and releases cleaner water than would discharge from a perforated riser pipe or plate.

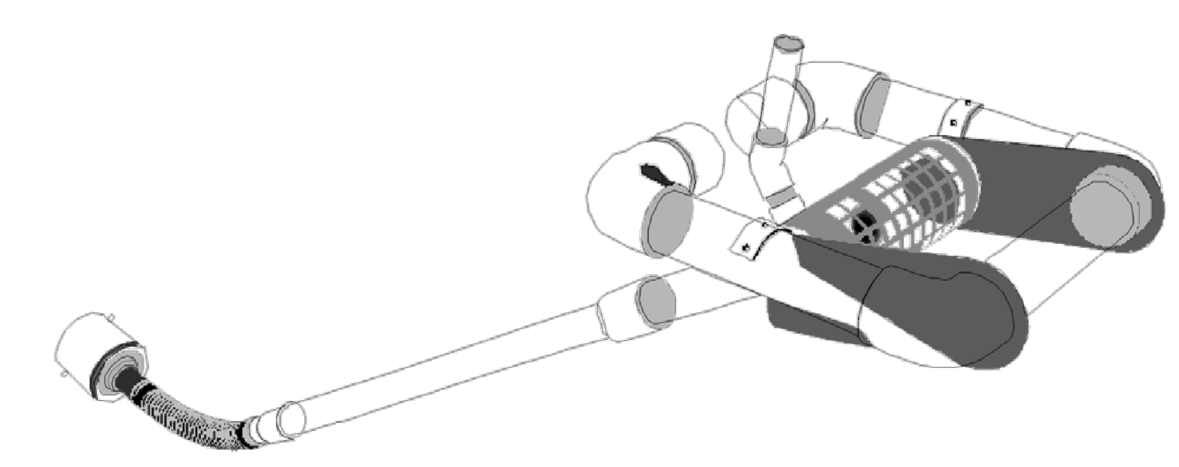


Illustration SB-1. Outlet structure for a temporary sediment basin - Faircloth Skimmer Floating Outlet. Illustration courtesy of J. W. Faircloth & Sons, Inc., FairclothSkimmer.com.

- **Outlet Protection and Spillway:** Consider all flow paths for runoff leaving the basin, including protection at the typical point of discharge as well as overtopping.
  - **Outlet Protection:** Outlet protection should be provided where the velocity of flow will exceed the maximum permissible velocity of the material of the waterway into which discharge occurs. This may require the use of a riprap apron at the outlet location and/or other measures to keep the waterway from eroding.
  - **Emergency Spillway:** Provide a stabilized emergency overflow spillway for rainstorms that exceed the capacity of the sediment basin volume and its outlet. Protect basin embankments from erosion and overtopping. If the sediment basin will be converted to a permanent detention basin, design and construct the emergency spillway(s) as required for the permanent facility. If the sediment basin will not become a permanent detention basin, it may be possible to substitute a heavy polyvinyl membrane or properly bedded rock cover to line the spillway and downstream embankment, depending on the height, slope, and width of the embankments.

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Maintenance and Removal

Maintenance activities include the following:

- Dredge sediment from the basin, as needed to maintain BMP effectiveness, typically when the design storage volume is no more than one-third filled with sediment.
- Inspect the sediment basin embankments for stability and seepage.
- Inspect the inlet and outlet of the basin, repair damage, and remove debris. Remove, clean and replace the gravel around the outlet on a regular basis to remove the accumulated sediment within it and keep the outlet functioning.
- Be aware that removal of a sediment basin may require dewatering and associated permit requirements.
- Do not remove a sediment basin until the upstream area has been stabilized with vegetation.

Final disposition of the sediment basin depends on whether the basin will be converted to a permanent post-construction stormwater basin or whether the basin area will be returned to grade. For basins being converted to permanent detention basins, remove accumulated sediment and reconfigure the basin and outlet to meet the requirements of the final design for the detention facility. If the sediment basin is not to be used as a permanent detention facility, fill the excavated area with soil and stabilize with vegetation.

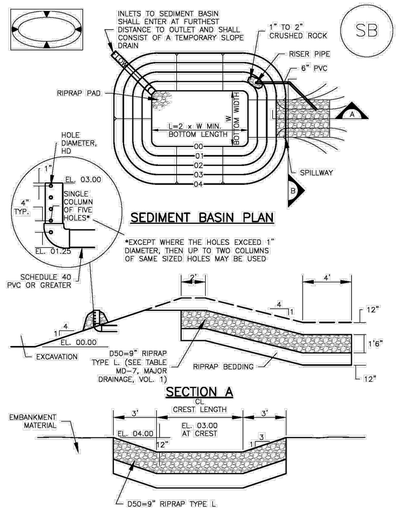

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 ½	2	9/32
2	21	3	13/64
3	28	5	½
4	33 ½	6	9/16
5	38 ½	8	21/32
6	43	9	23/32
7	47 ¼	11	25/32
8	51	12	27/32
9	55	13	⅞
10	58 ¼	15	15/16
11	61	16	31/32
12	64	18	1
13	67 ½	19	1 1/16
14	70 ⅝	21	1 ⅛
15	73 ¼	22	1 3/16

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF SEDIMENT BASIN.
   –TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
   –FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   –FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.

2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.

3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND–DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.

4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.

5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.

6. PIPE SCH 40 OR GREATER SHALL BE USED.

7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SEDIMENT BASIN MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).

5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.

6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

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

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NO.	REVISION	DATE	BY
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ONLY VALID FOR CONSTRUCTION IF SEAL & ORIGINAL SIGNATURE ARE ON EACH SHEET

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CHECKED BY: CFC
PROJECT NO. 01-0355.001.02
DOC CON # 0024-GESC DTLS
SHEET 24 OF 28

Description

Photograph CF-1. A construction fence helps delineate areas where existing vegetation is being protected. Photo courtesy of Douglas County.

A construction fence restricts site access to designated entrances and exits, delineates construction site boundaries, and keeps construction out of sensitive areas such as natural areas to be preserved as open space, wetlands and riparian areas.

Appropriate Uses

A construction fence can be used to delineate the site perimeter and locations within the site where access is restricted to protect natural resources such as wetlands, waterbodies, trees, and other natural areas of the site that should not be disturbed.

If natural resource protection is an objective, then the construction fencing should be used in combination with other perimeter control BMPs such as silt fence, sediment control logs or similar measures.

Design and Installation

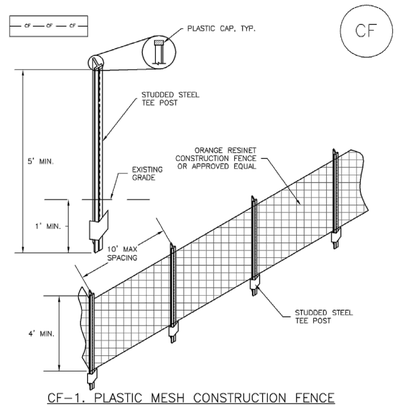
Construction fencing may be chain link or plastic mesh and should be installed following manufacturer's recommendations. See Detail CF-1 for typical installations.

Do not place construction fencing in areas within work limits of machinery.

Maintenance and Removal

- Inspect fences for damage; repair or replace as necessary.
- Fencing should be tight and any areas with slumping or fallen posts should be reinstalled.
- Fencing should be removed once construction is complete.

Construction Fence	
Functions	
Erosion Control	No
Sediment Control	No
Site/Material Management	Yes



CF–1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR–GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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

Description

Photograph VTC-1. A vehicle tracking control pad constructed with properly sized rock reduces off-site sediment tracking.

Vehicle tracking controls provide stabilized construction site access where vehicles exit the site onto paved public roads. An effective vehicle tracking control helps remove sediment (mud or dirt) from vehicles, reducing tracking onto the paved surface.

Appropriate Uses

Implement a stabilized construction entrance or vehicle tracking control where frequent heavy vehicle traffic exits the construction site onto a paved roadway. An effective vehicle tracking control is particularly important during the following conditions:

- Wet weather periods when mud is easily tracked off site.
- During dry weather periods where dust is a concern.
- When poorly drained, clayey soils are present on site.

Although wheel washes are not required in designs of vehicle tracking controls, they may be needed at particularly muddy sites.

Design and Installation

Construct the vehicle tracking control on a level surface. Where feasible, grade the tracking control towards the construction site to reduce off-site runoff. Place signage, as needed, to direct construction vehicles to the designated exit through the vehicle tracking control. There are several different types of stabilized construction entrances including:

VTC-1. Aggregate Vehicle Tracking Control. This is a coarse-aggregate surfaced pad underlain by a geotextile. This is the most common vehicle tracking control, and when properly maintained can be effective at removing sediment from vehicle tires.

VTC-2. Vehicle Tracking Control with Construction Mat or Turf Reinforcement Mat. This type of control may be appropriate for site access at very small construction sites with low traffic volume over vegetated areas. Although this application does not typically remove sediment from vehicles, it helps protect existing vegetation and provides a stabilized entrance.

Vehicle Tracking Control	
Functions	
Erosion Control	Moderate
Sediment Control	Yes
Site/Material Management	Yes

VTC-3. Stabilized Construction Entrance/Exit with Wheel Wash. This is an aggregate pad, similar to VTC-1, but includes equipment for tire washing. The wheel wash equipment may be as simple as hand-held power washing equipment to more advance proprietary systems. When a wheel wash is provided, it is important to direct wash water to a sediment trap prior to discharge from the site.

Vehicle tracking controls are sometimes installed in combination with a sediment trap to treat runoff.

Maintenance and Removal

Inspect the area for degradation and replace aggregate or material used for a stabilized entrance/exit as needed. If the area becomes clogged and ponds water, remove and dispose of excess sediment or replace material with a fresh layer of aggregate as necessary.

Photograph VTC-2. A vehicle tracking control pad with wheel wash facility. Photo courtesy of Tom Gore.

With aggregate vehicle tracking controls, ensure rock and debris from this area do not enter the public right-of-way.

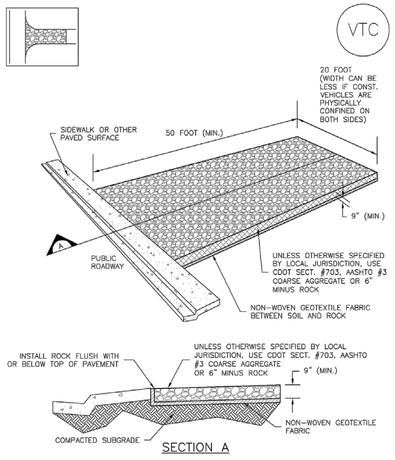
Remove sediment that is tracked onto the public right of way daily or more frequently as needed. Excess sediment in the roadway indicates that the stabilized construction entrance needs maintenance.

Ensure that drainage ditches at the entrance/exit area remain clear.

A stabilized entrance should be removed only when there is no longer the potential for vehicle tracking to occur. This is typically after the site has been stabilized.

When wheel wash equipment is used, be sure that the wash water is discharged to a sediment trap prior to discharge. Also inspect channels conveying the water from the wash area to the sediment trap and stabilize areas that may be eroding.

When a construction entrance/exit is removed, excess sediment from the aggregate should be removed and disposed of appropriately. The entrance should be promptly stabilized with a permanent surface following removal, typically by paving.



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).

2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

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

Description

A stabilized staging area is a clearly designated area where construction equipment and vehicles, stockpiles, waste bins, and other construction-related materials are stored. The contractor office trailer may also be located in this area. Depending on the size of the construction site, more than one staging area may be necessary.

Photograph SSA-1. Example of a staging area with a gravel surface to prevent mud tracking and reduce runoff. Photo courtesy of Douglas County.

Appropriate Uses

Most construction sites will require a staging area, which should be clearly designated in SWMP drawings. The layout of the staging area may vary depending on the type of construction activity. Staging areas located in roadways due to space constraints require special measures to avoid materials being washed into storm inlets.

Design and Installation

Stabilized staging areas should be completed prior to other construction activities beginning on the site. Major components of a stabilized staging area include:

- Appropriate space to contain storage and provide for loading/unloading operations, as well as parking if necessary.
- A stabilized surface, either paved or covered, with 3-inch diameter aggregate or larger.
- Perimeter controls such as silt fence, sediment control logs, or other measures.
- Construction fencing to prevent unauthorized access to construction materials.
- Provisions for Good Housekeeping practices related to materials storage and disposal, as described in the Good Housekeeping BMP Fact Sheet.
- A stabilized construction entrance/exit, as described in the Vehicle Tracking Control BMP Fact Sheet, to accommodate traffic associated with material delivery and waste disposal vehicles.

Over-sizing the stabilized staging area may result in disturbance of existing vegetation in excess of that required for the project. This increases costs, as well as requirements for long-term stabilization following the construction period. When designing the stabilized staging area, minimize the area of disturbance to the extent practical.

Stabilized Staging Area	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material	Yes

Minimizing Long-Term Stabilization Requirements

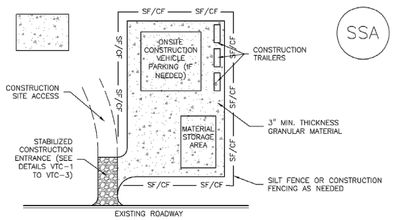
- Utilize off-site parking and restrict vehicle access to the site.
- Use construction mats in lieu of rock when staging is provided in an area that will not be disturbed otherwise.
- Consider use of a bermed contained area for materials and equipment that do not require a stabilized surface.
- Consider phasing of staging areas to avoid disturbance in an area that will not be otherwise disturbed.

See Detail SSA-1 for a typical stabilized staging area and SSA-2 for a stabilized staging area when materials staging in roadways is required.

Maintenance and Removal

Maintenance of stabilized staging areas includes maintaining a stable surface cover of gravel, repairing perimeter controls, and following good housekeeping practices.

When construction is complete, debris, unused stockpiles and materials should be recycled or properly disposed. In some cases, this will require disposal of contaminated soil from equipment leaks in an appropriate landfill. Staging areas should then be permanently stabilized with vegetation or other surface cover planned for the development.



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF STAGING AREA(S).
   -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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

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

Description

Street sweeping and vacuuming remove sediment that has been tracked onto roadways to reduce sediment transport into storm drain systems or a surface waterway.

Photograph SS-1. A street sweeper removes sediment and potential pollutants along the curb line at a construction site. Photo courtesy of Tom Gore.

Appropriate Uses

Use this practice at construction sites where vehicles may track sediment offsite onto paved roadways.

Design and Installation

Street sweeping or vacuuming should be conducted when there is noticeable sediment accumulation on roadways adjacent to the construction site. Typically, this will be concentrated at the entrance/exit to the construction site. Well-maintained stabilized construction entrances, vehicle tracking controls and tire wash facilities can help reduce the necessary frequency of street sweeping and vacuuming.

On smaller construction sites, street sweeping can be conducted manually using a shovel and broom. Never wash accumulated sediment on roadways into storm drains.

Maintenance and Removal

- Inspect paved roads around the perimeter of the construction site on a daily basis and more frequently, as needed. Remove accumulated sediment, as needed.
- Following street sweeping, check inlet protection that may have been displaced during street sweeping.
- Inspect area to be swept for materials that may be hazardous prior to beginning sweeping operations.

Street Sweeping/ Vacuuming	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	Yes

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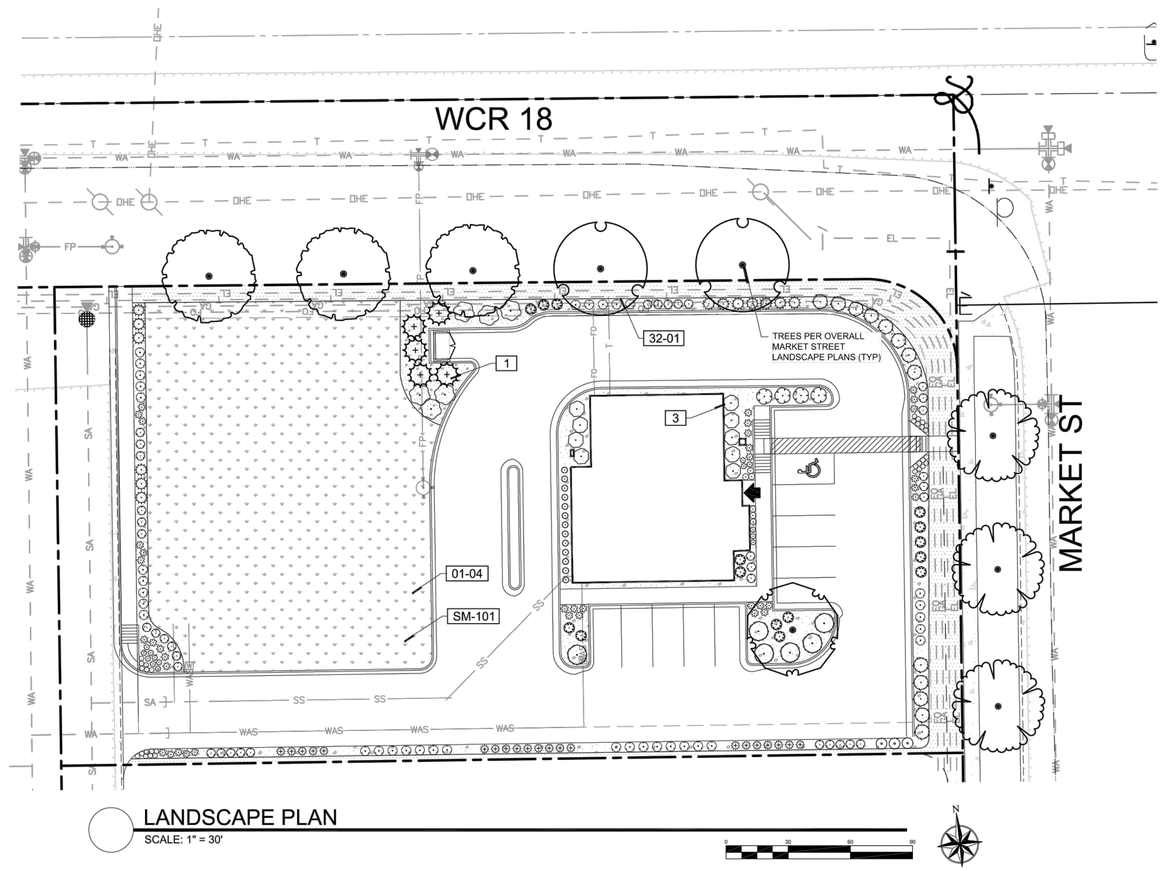

LANDSCAPE PLAN
SCALE: 1" = 30'

PLANT SCHEDULE

QTY FOR REFERENCE ONLY, VERIFY ALL COUNTS PER PLAN

TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL
	CS	3	CATALPA SPECIOSA / NORTHERN CATALPA	B & B	2"CAL
	CO	3	CELTIS OCCIDENTALIS / COMMON HACKBERRY	B & B	2"CAL
	GTS	1	GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER` TM / SHADEMASTER LOCUST	B & B	2"CAL
	JSG	5	JUNIPERUS SCOPULORUM `MOONGLOW` / MOONGLOW JUNIPER	5` HT	
	QM	2	QUERCUS MUEHLENBERGII / CHINKAPIN OAK	B & B	2"CAL

SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	FIELD2
	AC	6	ARCTOSTAPHYLOS X COLORADOENSIS `CHIEFTAIN` / MANZANITA	5 GAL	
	AI	9	ARONIA MELANOCARPA `IROQUOIS BEAUTY` TM / BLACK CHOKEBERRY	5 GAL	
	RRF	3	FRANGULA ALNUS `FINE LINE` / FINE LINE BUCHTHORN	5 GAL	
	PALS	36	PEROVSKIA ATRIPLICIFOLIA `LITTLE SPIRE` / DWARF RUSSIAN SAGE	5 GAL	
	POD	6	PHYSOCARPUS OPULIFOLIUS `DIABLO` / DIABLO NINEBARK	5 GAL	
	POL	15	PHYSOCARPUS OPULIFOLIUS `LITTLE DEVIL` / DWARF PURPLE NINEBARK	5 GAL	
	Pw	13	PINUS MUGO 'WHITE BUD' / WHITE BUD MUGO PINE	5 GAL	
	PF	35	POTENTILLA FRUTICOSA `GOLD DROP` / GOLDFINGER POTENTILLA	5 GAL	
	PBP	4	PRUNUS BESSEYI `PAWNEE BUTTES` / SAND CHERRY	5 GAL	

GRASSES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	BB	37	BOUTELOUA GRACILIS `BLONDE AMBITION` / BLUE GRAMA	1 GAL
	PVD	21	PANICUM VIRGATUM `DALLAS BLUES` / DALLAS BLUES SWITCH GRASS	1 GAL
	PVS	13	PANICUM VIRGATUM `SHENENDOAH` / BURGUNDY SWITCH GRASS	1 GAL
	SW	13	SPOROBOLUS WRIGHTII / BIG SACATON	1 GAL

PERENNIALS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	EM	14	ECHINACEA PURPUREA `MAGNUS` / MAGNUS PURPLE CONEFLOWER	1 GAL
	LG	6	LAVANDULA X INTERMEDIA `PROVENCE` / PROVENCE LAVENDER	1 GAL
	PPP	30	PENSTEMON PINIFOLIUS / THREADLEAF BEARDTONGUE	4"POT

GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	CONT
	NLS	10,381 SF	NATIVE LAWN SEED MIX / PAWNEE BUTTES SEED CO NATIVE LAWN MIX 2-3 LBS PER 1000 SQUARE FEET.	SEED
	TURF	3,497 SF	TURF / TEXAS HYBRID BLUEGRASS KENTUCKY BLUE GRASS BLEND TO MATCH EXISTING. SETBACK AND PARKWAY AREAS TO BE ON OVERALL DEVELOPMENT SYSTEM.	SOD

MULCHES	CODE	QTY	BOTANICAL / COMMON NAME	CONT
	RM	5,084 SF	ROCK MULCH / RIVER ROCK 1"-2" PER OWNER APPROVAL. PLACE TO A UNIFORM DEPTH OF 3" OVER PERMEABLE WEED BARRIER FABRIC.	MULCH

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION
1	PLACE SHREDDED CEDAR MULCH AROUND BASE OF ALL PERENNIALS AND GRASSES IN LARGE COBBLE AREAS. MASSED PERENNIALS TO RECEIVE LARGE RING AROUND ENTIRE GROUP (TYP). WOOD MULCH NOT REQUIRED AROUND BASE OF PLANTS LOCATED IN PEA GRAVEL.
3	MINIMUM 3` ROOTBALL OFFSET FROM BUILDING, TYP.

SYMBOL	DESCRIPTION
01-04	SEED ALL DISTURBED AREAS WITH NATIVE LAWN MIX UNLESS OTHERWISE NOTED.

32 LANDSCAPE IMPROVEMENTS

SYMBOL	DESCRIPTION
32-01	14 G ROLL TOP STEEL EDGING, STAKED 30" OC MAX.
SM-101	ALL SEEDED AREAS TO BE AMENDED AND HYDROSEEDED. PLACE EROSION CONTROL MAT ON ALL SLOPES EXCEEDING 4:1.

Native Lawn Mix
(90%) Buffalograss
(10%) Blue Grama
Seed @ 2-3 lb / 1000 sf

ALL SEED MIXES AS SPECIFIED BY PAWNEE BUTTES SEED COMPANY

SEED MAINTENANCE: MOW NATIVE LAWN MIX ABOUT ½ THE AMOUNT AS SODDED TURFGRASS OR AS NEEDED. HAND PULL WEED OR SPOT WEED USING A BROADLEAF APPLICATION DURING FIRST 3 GROWING SEASONS.

DISTURBED AREAS TO BE RESEEDED WITH NATIVE LAWN MIX UNLESS OTHERWISE NOTED. RE: CIVIL PLANS

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HIGH PLAINS BANK
KEENESBURG, CO
FINAL LANDSCAPE PLAN

PROJ. NO.:
DATE: 05.31.21
SCALE: See Sheet
DRAWN: JRO
CHKD BY: NAM
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LANDSCAPE PLAN
MARKET STREET BUSINESS PARK SUBDIVISION - LOT 2
TOWN of KEENESBURG, WELD COUNTY, COLORADO

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26 OF 28

GENERAL NOTES

(Note: All references to "Contractor" are specific to "Landscape Contractor" unless notified as "General or other type of Contractor")

1. CONTRACTOR IS RESPONSIBLE FOR VERIFYING QUANTITIES OF MATERIALS NEEDED TO COMPLETE THIS PLAN IN THE FIELD. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE DRAWINGS AND CONDITIONS IN THE FIELD. SUBSTITUTIONS OF PLANT MATERIAL ARE NOT ALLOWED WITHOUT APPROVAL FROM LANDSCAPE ARCHITECT GIVEN PRIOR TO INSTALLATION. GRAPHIC QTY'S. PREVAIL OVER WRITTEN QTY'S. PRIOR TO COMMENCEMENT OF WORK THE LANDSCAPE CONTRACTOR SHALL CONTACT OWNERS REPRESENTATIVE FOR SPECIFIC INSTRUCTIONS RELEVANT TO THE SEQUENCING AND SCOPE OF WORK.
2. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL LANDSCAPE SHOWN ON THIS PLAN. ANY DEFICIENCIES OR DEVIATIONS FROM THIS PLAN ARE TO BE APPROVED BY OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT. ANY CHANGES FROM THE APPROVED PLANS MAY REQUIRE APPROVAL FROM THE CITY OR COUNTY PLANNING DEPARTMENTS. LANDSCAPE CONTRACTOR TO PROVIDE ALL LABOR AND MATERIALS NECESSARY TO FURNISH SCOPE OF WORK AS SHOWN PER PLAN.
3. EXISTING TOPSOIL IS TO BE STOCKPILED AND USED TO ESTABLISH FINAL GRADES WITHIN LANDSCAPE AREAS. ALL STOCKPILED SOIL MUST BE CLEAR OF WEEDS, ROCKS AND DEBRIS BEFORE REUSE. ALL BERMED PLANTING BEDS TO BE CREATED WITH IMPORTED TOPSOIL.
4. GENERAL CONTRACTOR TO RE-SPREAD STOCKPILED SOIL AND ESTABLISH ROUGH GRADE CONDITIONS TO THE FOLLOWING SPECIFICATIONS:
   A. 1" BELOW CURB FOR ALL SEEDED AREAS.
   B. 2.5" BELOW CURB FOR ALL SODDED AREAS.
   C. 4" BELOW CURB FOR ALL PLANTING, ROCK AND MULCH BEDS.
5. CONTRACTOR TO TILL PARKING LOT ISLANDS TO A DEPTH OF 30".
6. AMEND ALL PLANTING BEDS WITH CLASS 1 COMPOST. APPLY AT RATE OF 3 CYDS. PER 1000 SQUARE FEET TO ALL PLANTING BEDS AND MANICURED LAWN AREAS, AND 2 CYDS. PER 1000 SQUARE FEET FOR SEEDED AREAS. TILL, MIXING THOROUGHLY, INTO THE UPPER 8" OF SOIL.
7. FINE GRADE TO BE ESTABLISHED BY LANDSCAPE CONTRACTOR. FINE GRADE SHALL BE FREE OF ROCKS AND DEBRIS. FINE GRADE IN SEED AREAS SHALL BE FREE FROM ROCKS AND DEBRIS ½" AND GREATER. FINE GRADE IN SODDED AREAS SHALL BE FREE FROM ROCKS AND DEBRIS ¼"AND GREATER. CONTRACTOR TO REPORT ANY POOR DRAINAGE CONDITIONS PRIOR TO CONSTRUCTION.
8. CONTRACTOR IS TO PROVIDE VERIFICATION THAT ALL SOD AND SEED IS OF THE SPECIES SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE ALLOWED. SOD TO BE LAID WITH TIGHT STAGGERED EDGES AND BE ROLLED AFTER INSTALLATION. SEEDED AREAS CANNOT BE SUBSTITUTED WITH SOD.
9. MULCHS: ALL PLANTING BEDS THAT CALL FOR WOOD MULCH TO RECEIVE 4" ORGANIC SHREDDED BARK MULCH. SHREDDED MULCH IS TO BE OF FIBROUS MATERIAL, NOT CHIPS OR CHUNKS. NO FABRIC IS TO BE PLACED UNDER WOOD/ORGANIC MULCH. ALL MULCHED BEDS ARE TO BE SPRAYED WITH WATER AFTER INSTALLATION TO HELP MULCH TO MAT DOWN.

   ALL AREAS THAT CALL FOR COBBLE/ROCK MULCH TO RECEIVE MIN. 3" DEPTH, UNLESS NOTED OTHERWISE. USE PERMEABLE FABRIC UNDERLAYMENT FOR ALL COBBLE/AGGREGATE AREAS WITH SLOPES 3:1 AND LESS. USE QUICK RELEASE ORGANIC PRE-EMERGENT HERBICIDE FOR

   ALL MULCHED AND PERENNIAL/PLANTING BEDS (AND FOR COBBLE/AGGREGATE AREAS WITH SLOPES EXCEEDING 3:1 GRADE.

   TREES IN COBBLE/ROCK MULCH, SOD AND SEEDED AREAS TO RECEIVE 4' DIAMETER OF WOOD MULCH RING, 3" DEEP. SHRUBS AND GROUNDCOVERS IN COBBLE/ROCK MULCH SOD AND SEEDED AREAS TO RECEIVE A WOOD MULCH RING AT 2X DIAMETER OF ROOT BALL, 3" DEPTH. NO FABRIC UNDERLAYMENT IN WOOD MULCH RINGS.
10. SEED MIX INSTALLATION: CONTRACTOR TO DRILL SEED WITH BRILLION TYPE APPLICATOR AND APPLY 'SOIL GUARD' BONDED FIBER MATRIX (BFM), WHERE INDICATED PER PLAN AND SCHEDULES. APPLY SEED IN TWO DIRECTIONS (PERPENDICULAR OF THE OTHER) ADD SOIL GUARD BFM FOR DRILL SEEDING WHERE NOTED PER PLAN AND ON ALL SLOPES 5:1 TO 3:1. FOR AREAS WITH 3:1 SLOPES OR GREATER CONTRACTOR TO USE SOIL GUARD APPLICATION ONLY (IN LIEU OF HYDROMULCH) CONTRACTOR TO SPOT SEED NON-GERMINATING AREAS (3) MONTHS AFTER INITIAL SEED APPLICATION. CONTRACTOR TO RE-SEED ALL BARE AREAS (6"x6") AND GREATER AFTER (6) MONTHS FROM SEED GERMINATION OR AT THE BEGINNING OF THE FOLLOWING GROWING SEASON. PRIOR TO THE 11-MONTH WARRANTY INSPECTION RE-APPLY SOIL GUARD AND SEED MIX TO ALL BARE AREAS (6"x6" OR GREATER) AND TO ALL BARE AREAS (4"x4" OR GREATER) ON ALL SLOPES 3:1 AND GREATER.
11. REMOVED DEAD TWIGS AND BRANCHES FROM ALL NEW AND EXISTING PLANT MATERIAL IN A MANNER THAT DOES NOT CHANGE THE NATURAL HABIT OF THE PLANT MATERIAL. SCARES OF 1" OR MORE SHALL BE PAINTED WITH ORGANIC TREE PAINT. CENTRAL LEADERS SHALL NOT BE REMOVED AT ANY TIME. NEWLY PLANTED TREES WITHOUT CENTRAL LEADERS WILL BE REJECTED.
12. CONTRACTOR TO APPLY FERTILIZER IN SPRING & LATE SEPTEMBER. WATER THOROUGHLY AFTER APPLICATION OF FERTILIZERS.

    ALL SEEDED AND SODDED AREAS TO HAVE RECOMMEND FERTILIZER APPLICATIONS ADDED ONCE IN MID TO LATE JUNE AND ONCE IN LATE SEPTEMBER. WATER THOROUGHLY AFTER APPLICATION OF FERTILIZERS.
13. ALL PLANT MATERIALS AND UTILITIES ARE SHOWN AT AN APPROXIMATE LOCATIONS. THE CONTRACTOR MAY NEED TO ADJUST LOCATIONS OF PLANT MATERIAL TO ADHERE TO SPECIFIC ON-SITE CONDITIONS AND CODE REQUIREMENTS. ALL TREES AND SHRUBS TO BE PLACES AT 2' MINIMUM BACK OF CURB. CONTRACTOR TO CALL FOR UTILITY LOCATES BEFORE PLANTING (TYP.) 1-800-922-1987, OR CALL 811 BEFORE YOU DIG!
14. STEEL EDGING TO BE USED TO SEPARATE ALL TURF AND/OR SEEDED AREAS FROM PLANTING BEDS. USE PERFORATED EDGING SEGMENTS TO OBTAIN POSITIVE DRAINAGE FOR ALL DRAINAGE SWALES OR AREAS OF STANDING WATER.
15. CONTRACTOR TO PROVIDE COBBLE & UNDERLAYMENT FOR BUILDING DRAINS AND SWALES THROUGH LANDSCAPED AREAS.
16. ALL REQUIRED LANDSCAPING TO BE INSTALLED PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
17. ALL NURSERY STOCK TO CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI z60.1) AND THE COLORADO NURSERY ACT.
18. CONTRACTOR IS RESPONSIBLE FOR CONTACTING LANDSCAPE ARCHITECT FOR ALL REQUIRED INSPECTIONS. PROVIDE AT LEAST 48 HOURS NOTICE TO SCHEDULE AN INSPECTION. REQUIRED INSPECTIONS INCLUDE A LANDSCAPE LAYOUT AND PLANT MATERIAL VERIFICATION AND PLACEMENT INSPECTION, IRRIGATION MAIN LINE INSPECTION, LANDSCAPE AND IRRIGATION PUNCH LIST INSPECTION, AND A LANDSCAPE AND IRRIGATION FINAL INSPECTION.
19. CONTRACTOR IS TO PROVIDE A ONE YEAR WARRANTY ON ALL PLANT MATERIAL, TURF, IRRIGATION COMPONENTS, AND WORKMANSHIP. REPLACEMENT PLANT MATERIALS SHALL BE OF THE SAME SPECIES AND SIZE AS THE DECAYED OR DEAD PLANT MATERIAL. WARRANTY IS VOID IF PLANT MATERIAL ARE UNDER OR OVER-WATERED/FERTILIZED, DAMAGED BY VANDALISM OR NEGLECTED BY OWNER AFTER FINAL MAINTENANCE PERIOD AND FINAL ACCEPTANCE IS PROVIDED.

    REMOVE ALL TREE STAKING MATERIALS AT END OF WARRANTY, PRIOR TO FINAL ACCEPTANCE
20. MAINTENANCE: THE OWNER OF THIS PROPERTY AND ANY FUTURE OWNERS SHALL BE RESPONSIBLE FOR THE PROPER LANDSCAPE AND IRRIGATION MAINTENANCE OF THIS SITE AND ANY RIGHT OF WAY AREAS BETWEEN THE CURB AND PROPERTY LINES OF THIS SITE. MAINTENANCE OF THIS SITE INCLUDES, BUT IS NOT LIMITED TO, IRRIGATION INSPECTIONS AND ADJUSTMENTS, IRRIGATION SYSTEM SHUT DOWN AND START UP, IRRIGATION LEAK REPAIR, LANDSCAPE WEEDING, MOWING, SEEDING, FERTILIZATION, WOOD MULCH AND ROCK COVER REPLACEMENT, PRUNING, AND PLANT MATERIAL REPLACEMENT (INCLUDING ANNUAL BEDS). ALL MAINTENANCE SHOULD BE IN ACCORDANCE WITH STANDARDS SPECIFIED WITHIN THE "ALCC SPECIFICATIONS HANDBOOK" REVISED EDITION- 1996. OWNER SHOULD CONTACT LANDSCAPE CONTRACTOR OR LANDSCAPE ARCHITECT REGARDING ANY QUESTIONS RELATING TO THE LANDSCAPE OR IRRIGATION MAINTENANCE OF THIS SITE.

    EXISTING TREES

    EXISTING TREES DESIGNATED ON PLANS AS "TO REMAIN", OR MARKED FOR PROTECTION AND PRESERVATION IN THE FIELD, SHALL NOT BE REMOVED OR DAMAGED.

    NO GRADING TO OCCUR WITHIN THE CRITICAL ROOT ZONE / DRIP LINE OF EXISTING TREES. ALL GRADING AROUND EXISTING TREES TO REMAIN SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.

    PRIOR TO CONSTRUCTION, ALL PROTECTED TREES SHALL HAVE ORANGE PROTECTION BARRIER FENCING ERECTED AT A HEIGHT OF 3' OR GREATER. FENCING TO BE SUPPORTED BY STURDY STOCK, CAPABLE OF SUPPORTING FENCING UNTIL ALL CONSTRUCTION OPERATIONS ARE COMPLETED. PLACE NO CLOSER THAN 6' FROM TRUNK, OR ONE HALF ($\frac{1}{2}$) OF THE DRIP LINE, WHICHEVER IS GREATER. WITHIN THE PROTECTED ZONE THERE SHALL BE NO MOVEMENT OF EQUIPMENT OR STORAGE OF EQUIPMENT, MATERIALS, WAIST, DEBRIS, OR FILL, UNLESS APPROVED BY THE LANDSCAPE ARCHITECT.

    AVOID CUTTING SURFACE ROOTS WHEREVER POSSIBLE. SIDEWALKS AND PAVING LEVELS SHOULD BE CONTOURED SUFFICIENTLY TO AVOID SUCH. ROOT CUTS FROM EXCAVATION SHOULD BE DONE RAPIDLY. SMOOTHE FLUSH CUTS SHOULD BE MADE. BACKFILL BEFORE ROOTS HAVE A CHANCE TO DRY OUT, AND THOROUGHLY WATER THE TREE IMMEDIATELY.

IRRIGATION NOTES

ALL TURF AREAS TO BE IRRIGATED WITH AN AUTOMATIC POP-UP SPRINKLER SYSTEM. ALL SHRUBS BEDS TO BE IRRIGATED WITH AUTOMATIC DRIP IRRIGATION SYSTEM. THE IRRIGATION SYSTEM IS TO BE ADJUSTED TO MEET THE NEEDS OF INDIVIDUAL PLANT MATERIAL.

IRRIGATION SYSTEM TO BE ADJUSTED AS NEEDED FOR PLANT ESTABLISHMENT FOR A PERIOD OF AT LEAST ONE (1) YEAR.

ADJUSTMENTS TO BE MADE AFTER ESTABLISHMENT BASED ON SPECIFIC PLANT REQUIREMENTS. SEE SUGGESTED RUN TIMES PROVIDED WITHIN THESE PLANS.

DESIGN OF IRRIGATION SYSTEMS TO MEET OR EXCEED LOCAL REQUIREMENTS AND INDUSTRY STANDARDS. CONSTRUCTION DOCUMENTS SUITABLE FOR DEVELOPMENT COORDINATION TO BE PROVIDED.

IRRIGATION SYSTEM TO BE DESIGNED USING APPROPRIATE COMPONENTS FOR PLANT MATERIAL, AND WILL INCLUDE A SMART ET CONTROLLER AND RAIN SENSOR.

ALL NATIVE SEED AREAS TO BE PERMANENTLY IRRIGATED.

PLAN NOTES:

1. **DEVELOPER WILL INSTALL ALL PRIVACY FENCING, TREES AND IRRIGATION IN THE LANDSCAPE BUFFERS. LANDSCAPE BUFFERS WILL BE OWNED AND MAINTAINED BY A COMMON OWNERS ASSOCIATION. FENCING, LANDSCAPING AND IRRIGATION ON THE INDIVIDUAL LOTS WILL BE THE RESPONSIBILITY EACH LAND OWNER AS THE LOTS ARE DEVELOPED.**
2. **NO SUBSTITUTIONS WITHOUT PREVIOUS APPROVAL OF LANDSCAPE ARCHITECT. UNAPPROVED DEVIATIONS FROM THIS PLAN WILL BE RECTIFIED AT CONTRACTORS EXPENSE. THIS INCLUDES DEVIATIONS OF CULTIVARS FROM THOSE PROPOSED. SEE NOTE #11 FOR ID TAG RETENTION REQUIREMENTS.**
3. **CONTRACTOR TO PROVIDE ANALYSIS OF ANY AMENDMENTS PROPOSED FOR PLANTING AREAS PRIOR TO INSTALLATION OF SUCH MATERIALS.**
4. **CONTRACTOR TO PROVIDE RECEIPTS TO LANDSCAPE ARCHITECT FOR ALL SEEDING PROPOSED ON SITE, PRIOR TO INSTALLATION OF SEEDING MATERIALS.**
5. **NO FABRIC UNDER WOOD MULCH IN ANY AREAS. ALL PLANTS IN ROCK MULCH AREAS TO RECEIVE SHREDDED CEDAR MULCH RINGS. MASSING SHALL HAVE CONTINUOUS SHREDDED MULCH BANDS. SEE DETAILS SHEET L2.0.**
6. **DRIPLINE TO BE PLACED OVER WEED BARRIER FABRIC AND STAKED ON TOP OF WEED BARRIER.**
7. **WEED BARRIER CUTOUTS FOR PLANTS IN ROCK AREAS SHALL ACCOUNT FOR MATURE SIZE OF PLANTS AND EQUAL AT LEAST THE DIAMETER OF THE ROOTBALL. SEE DETAIL SHEET L2.0**
8. **ALL EMITTERS PER IRRIGATION PLAN.**
9. **ALL EMITTERS TO BE PLACED AT THE APPROPRIATE LOCATIONS. ALL EMITTERS TO USE MICRO TUBING, STAKES, AND BUG CAPS.**
10. **SEE LANDSCAPE DETAILS SHEET FOR ADDITIONAL NOTES AND DETAILS.**
11. **RETAIN 10% OF ALL PLANT TAGS PER SPECIES FOR DURATION OF WARRANTY PERIOD.**

EXISTING TREE PROTECTION DIRECTIONS:

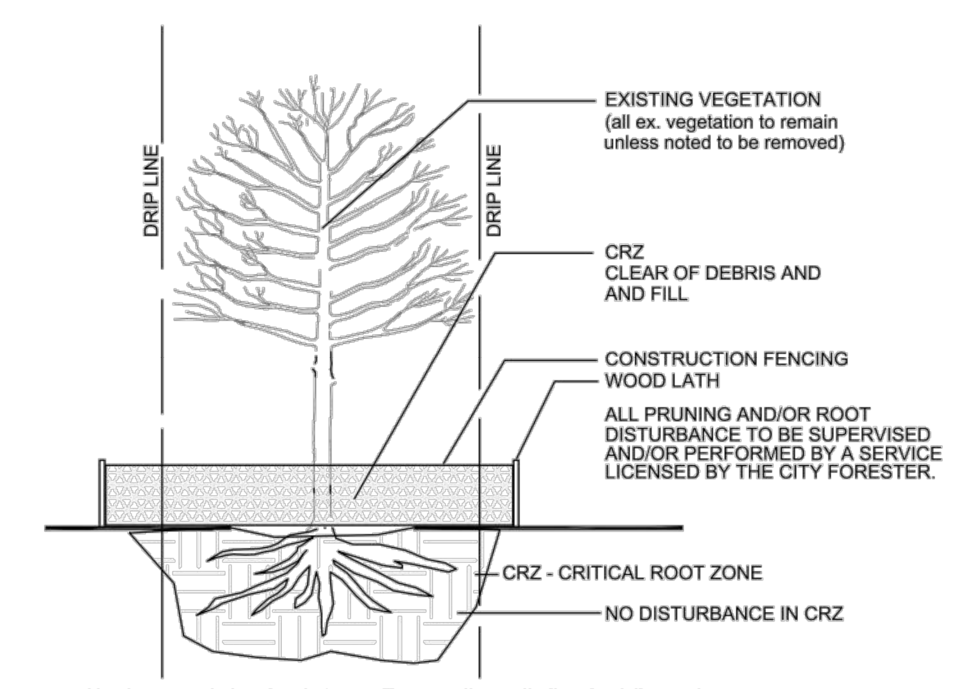
PROTECTIVE FENCING:

FOUR FEET HEIGHT PROTECTIVE FENCING IS TO BE INSTALLED AROUND THE EXISTING TREES TO REMAIN PRIOR TO CONSTRUCTION ON THIS SITE. CONTRACTOR IS TO TAKE PRECAUTIONS TO ENSURE THAT EXISTING ROOTS AND LIMBS ARE NOT DAMAGED DURING EXCAVATION ADJACENT TO TREES. FENCING IS TO BE INSTALLED BELOW THE EDGE OF THE CANOPY OF THE EXISTING TREES TO REMAIN. FENCING IS TO REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION.

IF ROOT PRUNING IS NECESSARY FOR GRADING, EXCAVATING, OR INSTALLATION OF IRRIGATION SYSTEM, ALL ROOT PRUNING IS TO TAKE PLACE OUTSIDE OF THE PROTECTIVE FENCING AROUND EACH TREE. CONTRACTOR IS TO TRENCH 12" AWAY FROM PROTECTIVE FENCING. ANY ROOTS LARGER THAN 2" ARE TO BE SAW CUT. CONTRACTOR IS TO HAND DIG ANY TRENCHES AND SAW CUT ANY INTERFERING ROOTS INSIDE THE PROTECTIVE FENCE AREAS.

WATERING, MULCHING, AND FERTILIZATION:

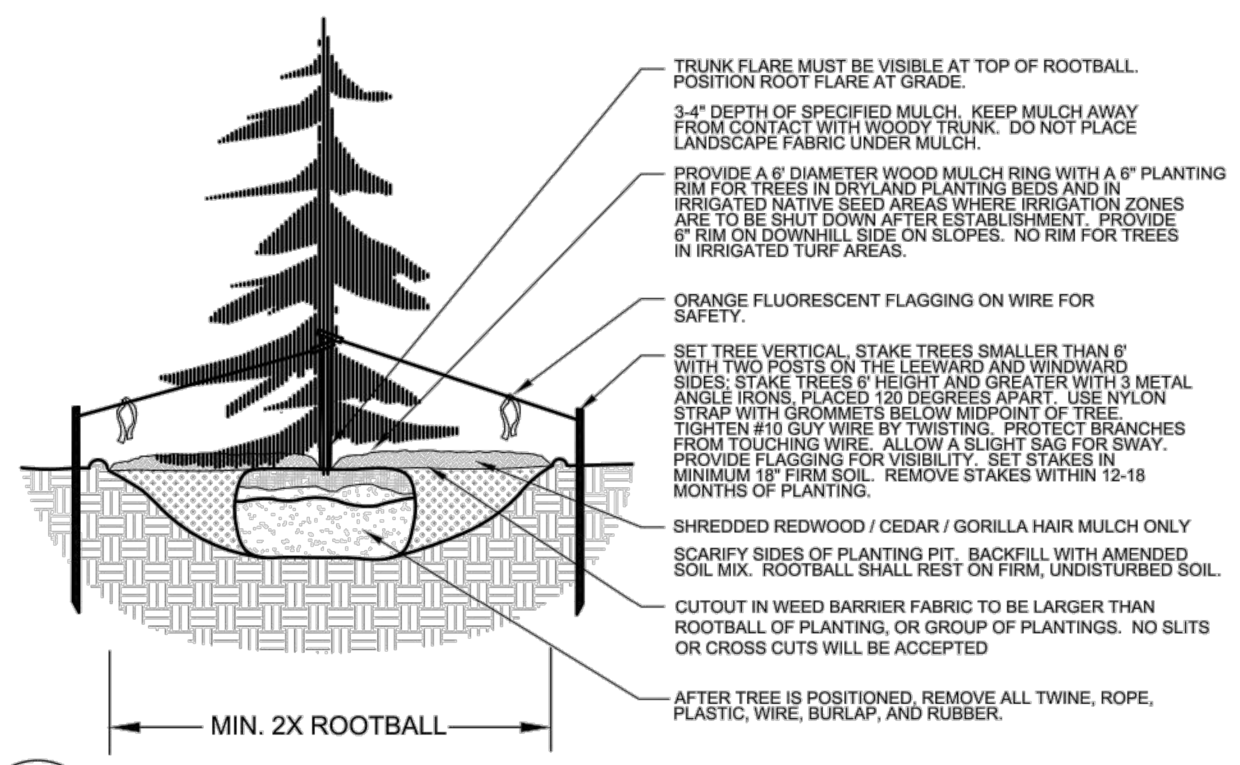
PRIOR TO CONSTRUCTION CONTRACTOR IS TO PLACE A 4" DEPTH OF WOOD CHIPS OR MULCH INSIDE THE PROTECTIVE FENCING OF EXISTING TREES TO REMAIN. CONTRACTOR IS TO PROVIDE REGULAR DEEP WATERING TO ALL EXISTING TREES TO REMAIN THROUGHOUT CONSTRUCTION. DURING CONSTRUCTION A SLOW-RELEASE NITROGREN FERTILIZER IS TO BE APPLIED AROUND THE BASE OF EACH TREE AT A RATE OF 2 LBS. PER 1000 S.F. (USE DRIP LINE OF TREE TO CALCULATE SQUARE FOOTAGE).



Use trees spade to relocate trees. Preserve the rootball and existing roots. Deep water for three months, provide drip irrigation thereafter.

L2.0 EXISTING TREE PROTECTION DETAIL

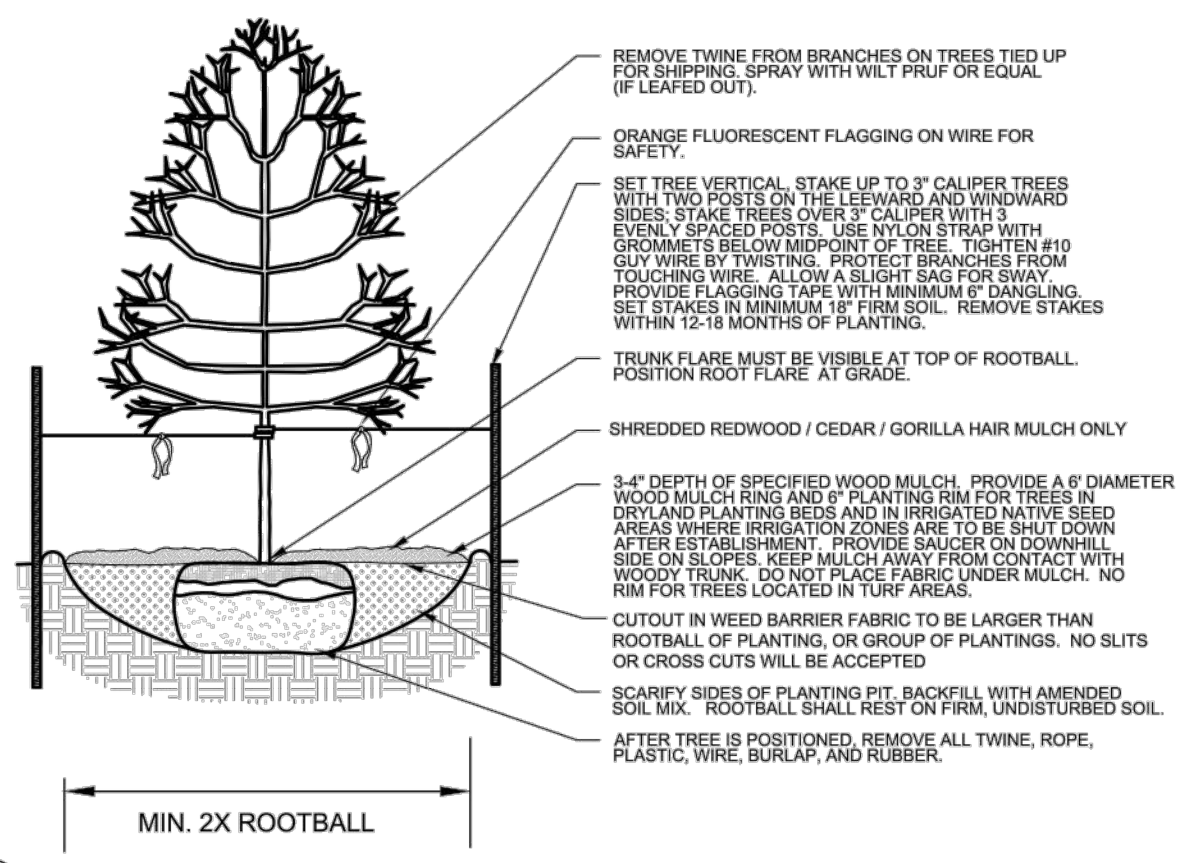
NOTES:
1. DO NOT REMOVE OR CUT LEADER.
2 PRUNE ONLY DEAD OR BROKEN BRANCHES IMMEDIATELY PRIOR TO PLANTING.
3. DO NOT REMOVE ANY DOUBLE LEADER, UNLESS OTHERWISE DIRECTED BY OWNERS REPRESENTATIVE.
4. KEEP PLANTS MOIST AND SHADED UNTIL PLANTING.
5. AMENDED BACKFILL SHALL BE AS STATED ON THIS SHEET.
6. MARK THE NORTH SIDE OF TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE.
7. PINE AND SPRUCE TREES TO BE SPRAYED FOR IPS BARK BEETLE PRIOR TO PLANTING. COORDINATE WITH CITY FORESTRY FOR CURRENT INSECT AND DISEASE RECOMMENDATIONS PRIOR TO PLANTING.
8. ALL TREES TO BE DEEP WATERED AT TIME OF PLANTING.



L2.0 EVERGREEN TREE PLANTING DETAIL

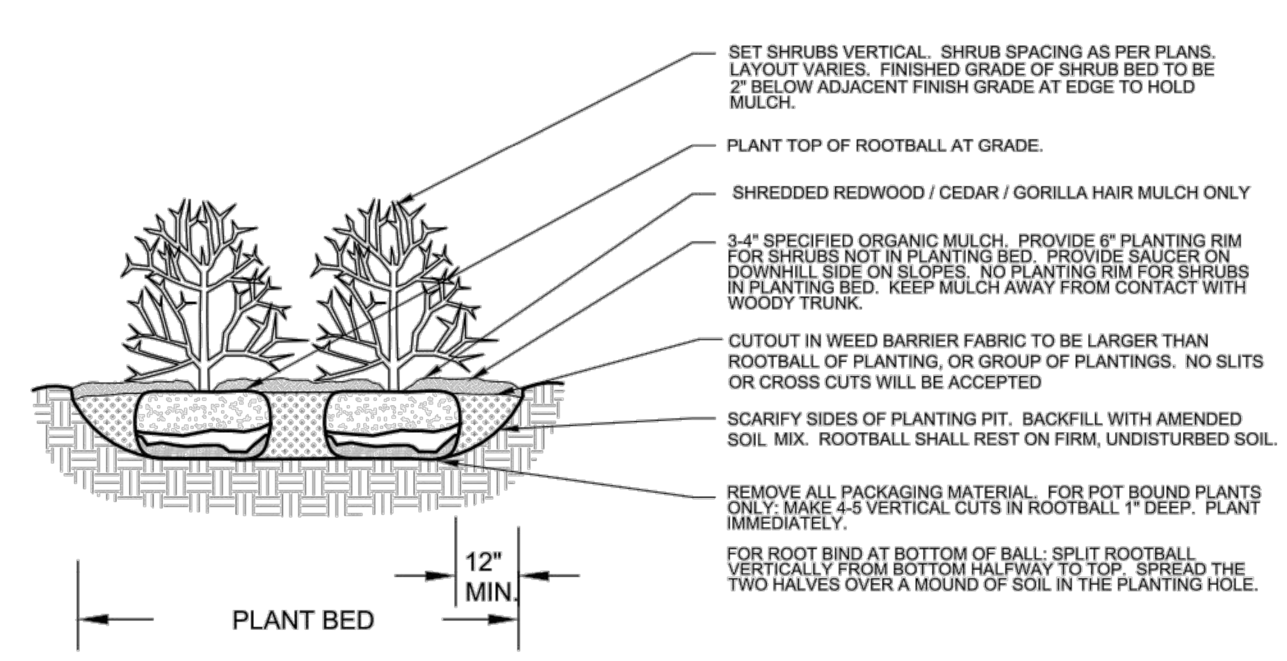
SECTION

NOTES:
1. MARK THE NORTH SIDE OF TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE.
2. AT TIME OF PLANTING, DO NOT REMOVE OR CUT LEADER AND PRUNE ONLY DEAD OR BROKEN BRANCHES, CROSS OVER BRANCHES, AND WEAK OR NARROW CROTCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED. HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
3. STRUCTURAL PRUNING SHOULD NOT BEGIN UNTIL AFTER ESTABLISHMENT PERIOD, USUALLY TWO GROWING SEASONS.
4. KEEP PLANTS MOIST AND SHADED UNTIL PLANTING.
5. DO NOT FERTILIZE FOR AT LEAST ONE GROWING SEASON.
6. AMENDED BACKFILL SHALL BE AS STATED ON THIS SHEET.
7. WRAP TRUNK ON EXPOSED SITES AND SPECIES WITH THIN BARK. USE ELECTRICAL OR DUCT TAPE, NOT TWINE.
8. COORDINATE WITH CITY FORESTRY FOR CURRENT INSECT AND DISEASE RECOMMENDATIONS PRIOR TO PLANTING.
9. DEEP WATER ALL PLANTS AT TIME OF PLANTING.



L2.0 DECIDUOUS TREE PLANTING DETAIL

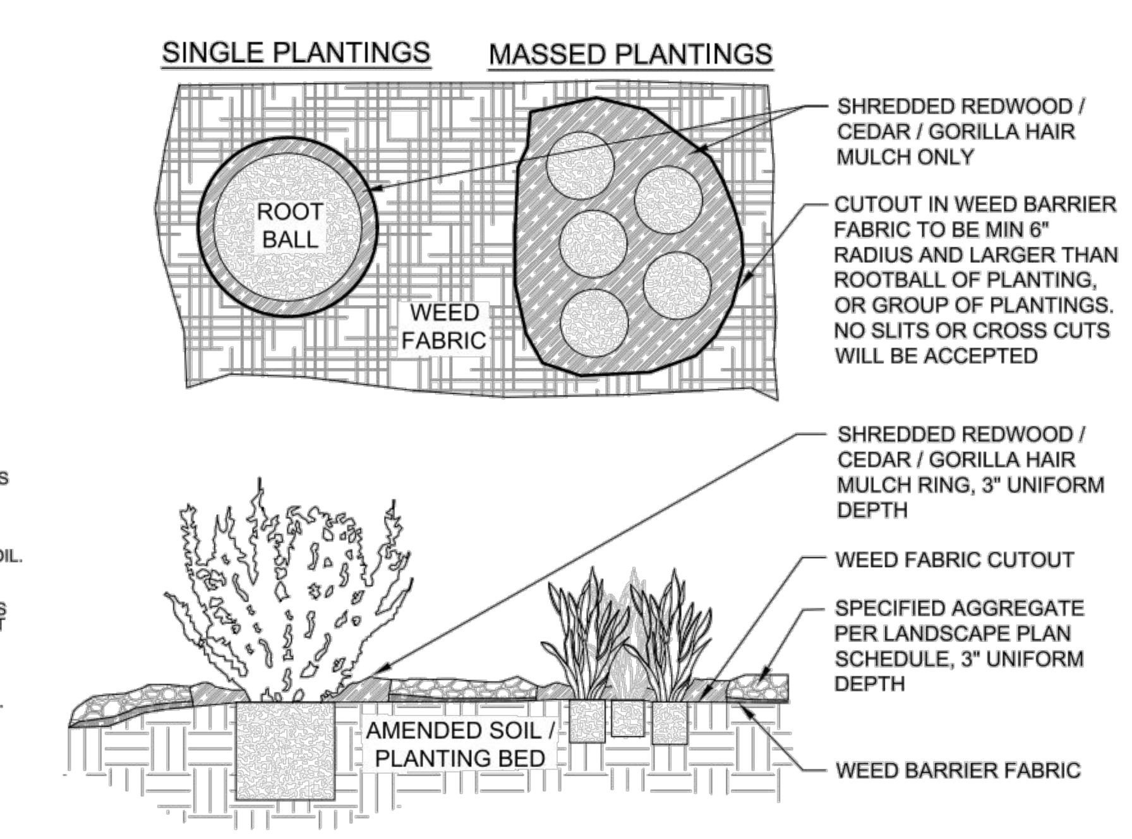
SECTION



L2.0 SHRUB PLANTING DETAIL

NOT TO SCALE

SECTION



L2.0 FABRIC CUTOUT / WOOD MULCH RING DETAIL

NOT TO SCALE

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FINAL LANDSCAPE PLAN DETAILS & NOTES

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LANDSCAPE PLAN
MARKET STREET BUSINESS PARK SUBDIVISION - LOT 2
TOWN of KEENESBURG, WELD COUNTY, COLORADO

DBSI + CFM
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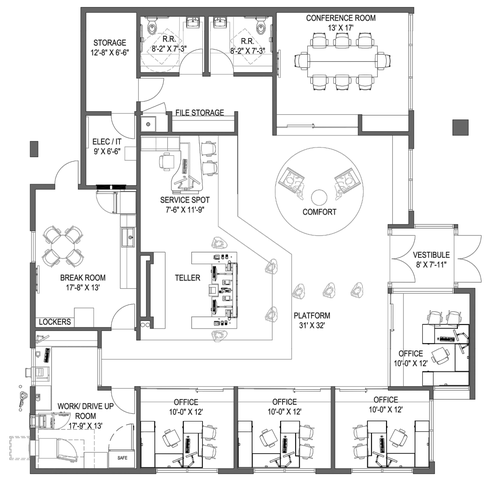

FLOOR PLAN
SCALE: 1/4" = 1'-0"

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