LORSON BOULEVARD BRIDGE over EAST FORK JIMMY CAMP CREEK

EL PASO COUNTY, COLORADO

PREPARED FOR LORSON DEVELOPMENT

GENERAL NOTES

1. Profile design lines are based on centerline, as shown, unless otherwise noted.
2. All new construction to conform to the specifications of El Paso County Department of Public Works. Any asphalt removed is to be replaced to meet the specifications of the El Paso County Public Works Department.
3. For pavement design, curb and gutter, and sidewalks see individual plan and profile sheets. Pavement design to be based on Resistance Value 'R' derived from Hveem tests and are to be approved by the Engineering Division of the El Paso County Planning and Community Development prior to work above subgrade.
4. At intersections, all curb returns will have 20-foot radius unless otherwise noted.
5. All existing utilities have been shown according to the best available information. The contractor is responsible for field location and verification prior to beginning work. If it appears that there could be a conflict with any utilities, whether indicated on the plans or not, the contractor is to notify the engineer and owner immediately. The contractor is responsible for the protection and repair (if necessary) of all utilities..
6. A Pre-Construction meeting shall be held with the El Paso County Planning and Community Developement and Widefield Water and Sanitation District prior to any construction.
7. Approved plans, Engineering Criteria Manual, etc. is required to be on-site at all times during construction..
8. All necessary permits, such as SWMP, ESQCP, Fugitive Dust, Access, C.O.E. 404, etc. shall be obtained prior to construction.
9. All handicap ramps to be per El Paso County Standard SD_2-40.
10. The contractor shall coordinate locations and layout with the El Paso County Planning and Community Development on the placement of any pedestrian ramps prior to construction of the curb.
11. Where appropriate, neatly saw cut all existing concrete and asphalt. Repair/replace all disturbed existing items with like materials and thicknesses.
12. All disturbed areas shall be revegetated with native grasses within 21 days of excavation per Erosion Control Plan.
13. The prepared Erosion/Sediment Control Plan is to be considered a part of these plans and its requirements adhered to during the construction of this project.
14. All storm and sanitary sewer pipe lengths and slopes are figured from center of manhole or bend. Pipe lengths are given as a horizontal length.
15. All storm sewer bedding to be per CDoT Standards.
16. All storm sewer pipe shall be Class III B Wall unless otherwise shown on the storm sewer plan and profile sheets.
17. All wyes and bends used in construction of storm sewer facilities shall be factory fabricated, unless approved by the El Paso County Development Services Department.
18. Construction and materials used in all storm and sanitary sewer manholes shall be per specifications. Storm sewer radial deflections to be grouted or installed per manufacturer's recommendations.
19. Storm sewer manholes sizes as follows unless otherwise shown:
    - 18" thru 36" use 48" I.D. manhole
    - 42" thru 48" use 60" I.D. manhole
    - 54" thru 60" use 72" I.D. manhole
    - NOTE: Manhole sizes tabulated here shall be increased, if necessary, to accommodate incoming laterals.
20. All horizontal stationing is based on the 'Face of Curb', unless otherwise shown.
21. All vertical design and top of curb are based on the design point shown in the typical cross section.
22. The curb line design point is located at the intersection of the face and top of curb for the Type III Standard 6-inch vertical curb. See typical street section for design point locations. .
23. Vertical curb to be used between curb returns (CR) and at curb inlets. Transitions from ramp to vertical curb shall be 10-feet unless otherwise approved by the El Paso County Public Services Department. All other curb & gutter to be ramp curb & gutter.
24. Cross pans to be per El Paso County Standard Detail SD_2-26.
25. Contractor responsible for meeting all Widefield Water and Sanitation District criteria when connecting to existing stubs.
26. Curb returns shall be straight graded from CR to CR unless otherwise noted.
27. Inlets are Type 'R' inlets (CDOT STD M-604-12) unless otherwise noted.

BENCHMARK: Monument is located at the Northwest corner of the intersection of Powers Boulevard and Fontaine Street. The monument is a 3-inch aluminum cap (FIMS ID #206). Located 51.3 feet west of the west edge of asphalt of Powers Blvd and 65.5 feet north of the north edge of asphalt of Fontaine Street, Elevation=5897.89 feet (NGVD 1929, 1960 Adj.)

Basis of Bearing: All bearings used herein are based on an assumed bearing of N89°42'02" E, a distance of 1873.45 feet between the northeasterly corner of Pioneer Landing at Lorson Ranch Filing No. 1, as recorded under Reception No. 210713013 of the records of the El Paso County Clerk and Recorder, as monumented by a rebar and orange surveyors cap stamped "Rampart PLS 26965", from which the east one-quarter corner (E ¼) of said section 14, as monumented by a 2-1/2" pipe with galvanized screw on cap only partially stamped.

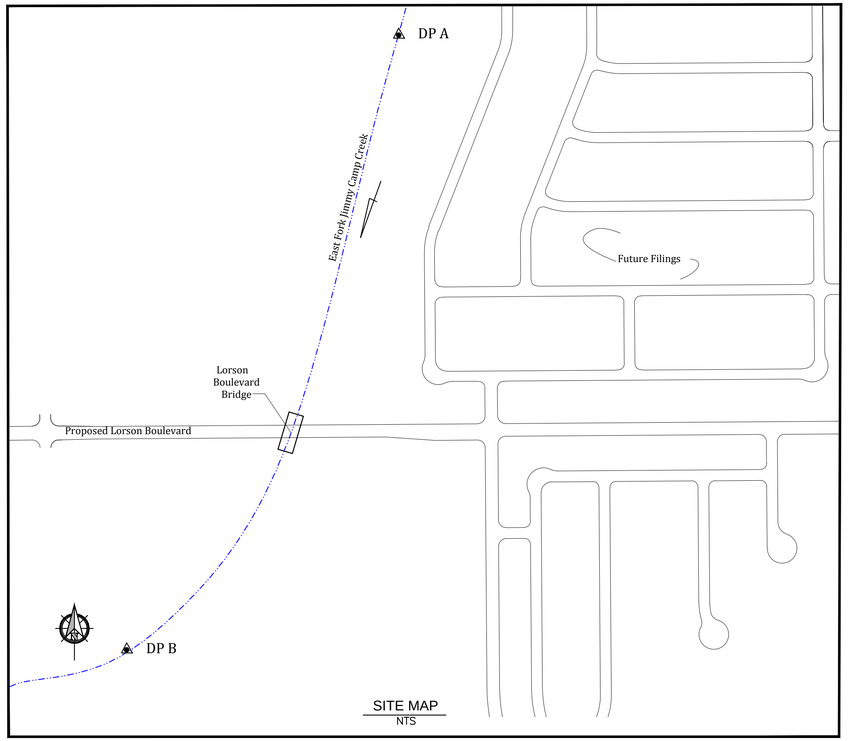
EL PASO COUNTY STANDARD NOTES

1. All drainage and roadway construction shall meet the standards and specifications of the City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2, and the El Paso County Engineering Criteria Manual.
2. Contractor shall be responsible for the notification and field notification of all existing utilities, whether shown on the plans or not, before beginning construction. Location of existing utilities shall be verified by the contractor prior to construction. Call 811 to contact the Utility Notification Center of Colorado (UNCC).
3. Contractor shall keep a copy of these approved plans, the Grading and Erosion Control Plan, the Stormwater Management Plan (SWMP), the soils and geotechnical report, and the appropriate design and construction standards and specifications at the job site at all times, including the following:
   a. El Paso County Engineering Criteria Manual (ECM)
   b. City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2
   c. Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction
   d. CDOT M & S Standards
4. Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing. Any modifications necessary to meet criteria after-the-fact will be entirely the developer's responsibility to rectify.
5. It is the design engineer's responsibility to accurately show existing conditions, both onsite and offsite, on the construction plans. Any modifications necessary due to conflicts, omissions, or changed conditions will be entirely the developer's responsibility to rectify.
6. Contractor shall schedule a pre-construction meeting with El Paso County Planning and Community Development (PCD) - Inspections, prior to starting construction.
7. It is the contractor's responsibility to understand the requirements of all jurisdictional agencies and to obtain all required permits, including but not limited to El Paso County Erosion and Stormwater Quality Control Permit (ESQCP), Regional Building Floodplain Development Permit, U.S. Army Corps of Engineers-issued 401 and/or 404 permits, and county and state fugitive dust permits.
8. Contractor shall not deviate from the plans without first obtaining written approval from the design engineer and PCD. Contractor shall notify the design engineer immediately upon discovery of any errors or inconsistencies.
9. All storm drain pipe shall be Class III RCP unless otherwise noted and approved by PCD.
10. Contractor shall coordinate geotechnical testing per ECM standards. Pavement design shall be approved by El Paso County PCD prior to placement of curb and gutter and pavement.
11. All construction traffic must enter/exit the site at approved construction access points.
12. Sight visibility triangles as identified in the plans shall be provided at all intersections. Obstructions greater than 18 inches above flowline are not allowed within sight triangles.
13. Signing and striping shall comply with El Paso County Department of Public Works and MUTCD criteria. [If applicable, additional signing and striping notes will be provided.]
14. Contractor shall obtain any permits required by El Paso County Department of Public Works, including Work Within the Right-of-Way and Special Transport permits.
15. The limits of construction shall remain within the property line unless otherwise noted. The owner/developer shall obtain written permission and easements, where required, from adjoining property owner(s) prior to any off-site disturbance, grading, or construction.

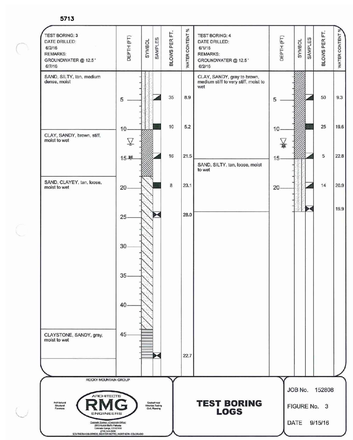
ABBREVIATIONS

ASSY	= ASSEMBLY	MIN.	= MINIMUM
BNDY	= BOUNDARY	NTS	= NOT TO SCALE
BOP	= BOTTOM OF PIPE	OD	= OUTSIDE DIAMETER
CL	= CENTERLINE	PC	= POINT OF HORIZONTAL CURVATURE
CRA	= CONCRETE REVERSE ANCHOR	PP	= PROPOSED
CTRB	= CONCRETE THRUST BLOCK	PT	= POINT OF HORIZONTAL TANGENCY
CR	= POINT OF CURB RETURN	PVC	= POLY VINYL CHLORIDE PIPE
DIP	= DUCTILE IRON PIPE	PVC	= POINT OF VERTICAL CURVATURE
EL	= ELEVATION	PVI	= POINT OF VERTICAL INTERSECTION
ESMT	= EASEMENT	PVT	= POINT OF VERTICAL TANGENCY
EX.	= EXISTING	RCB	= REINFORCED CONCRETE BOX
FC	= FACE OF CURB	RCP	= REINFORCED CONCRETE PIPE
FES	= FLARED END SECTION	ROW	= RIGHT OF WAY
FLG	= FLANGE	RT	= RIGHT
FL	= FLOWLINE	SHT	= SHEET
GB	= GRADE BREAK	SS	= SANITARY SEWER
HP	= HIGH POINT	STA	= STATION
HORIZ	= HORIZONTAL	STD	= STANDARD
HYD	= HYDRANT	TA	= TOP OF ASPHALT
I.D.	= INSIDE DIAMETER	TC	= TOP OF CURB
LT	= LEFT	TOP	= TOP OF PIPE
LF	= LINEAR FEET	TOR	= TOP OF ROCK
LP	= LOW POINT	TYP	= TYPICAL
MAX	= MAXIMUM	VC	= VERTICAL CURVE
MH	= MANHOLE	VERT	= VERTICAL

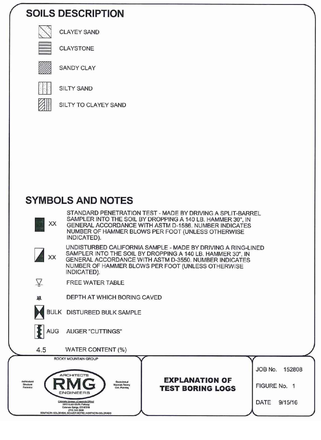
Know what's below. Call before you dig.



SITE MAP
NTS



TEST BORINGS



Kiowa Project No. 17001
Jan. 5, 2018

INDEX OF SHEETS

STATEMENTS

Design Engineer's Statement:

These detailed plans and specifications were prepared under my direction and supervision. Said plans and specifications have been prepared according to the criteria established by the County for detailed roadway, drainage, grading and erosion control plans and specifications, and said plans and specifications are in conformity with applicable master drainage plans and master transportation plans. Said plans and specifications meet the purposes for which the particular roadway and drainage facilities are designed and are correct to the best of my knowledge and belief. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparation of these detailed plans and specifications.

Richard N. Wray, P.E. #19310 Date
For and on behalf of Kiowa Engineering Corp.

Owner/Developer's Statement:

I, the owner/developer have read and will comply with all of the requirements specified in these detailed plans and specifications.

Jeff Mark
Lorson Development
212 N. Wahsatch Ave. Suite 301
Colorado Springs, Colorado 80903

El Paso County:

County plan review is provided only for general conformance with County Design Criteria. The County is not responsible for the accuracy and adequacy of the design, dimensions, and/or elevations which shall be confirmed at the job site. The County through the approval of this document assumes no responsibility for completeness and/or accuracy of this document.

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, and Engineering Criteria Manual as amended.

In accordance with ECM Section 1.12, these construction documents will be valid for construction for a period of 2 years from the date signed by the El Paso County Engineer. If construction has not started within those 2 years the plans will need to be resubmitted for approval, including payment of review fees at the Planning and Community Development Directors discretion.

Jennifer Irvine, P.E., Date
County Engineer / ECM Administrator

DISTRICT APPROVALS

The Widefield Water and Sanitation District recognizes the design engineer as having responsibility for the design. The Widefield Water and Sanitation District has limited its scope of review accordingly.

WIDEFIELD WATER AND SANITATION DISTRICT
WASTEWATER DESIGN APPROVAL

Date: _____ By: _____

In case of errors or omissions with the sewer design as shown on this document the standards as defined in the "Rules and Regulations for Installation of Sewer Mains and Services" shall rule.
Approval expires 180 days from Design Approval.

WIDEFIELD WATER AND SANITATION DISTRICT
WATER DESIGN APPROVAL

Date: _____ By: _____

In case of errors or omissions with the sewer design as shown on this document the standards as defined in the "Rules and Regulations for Installation of Sewer Mains and Services" shall rule.
Approval expires 180 days from Design Approval.

SUMMARY OF DESIGN FLOWS (cfs)

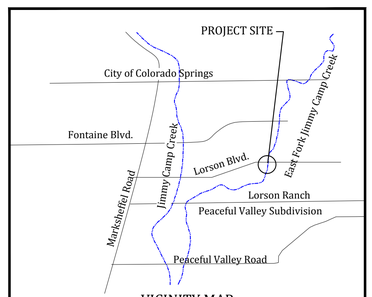
DP	EPC FIS (1) 5yr	10yr	100yr	2014 DPBS 5yr	10yr	100yr
A	NR	2600	5200	100	1860	4530
B	NR	2800	5500	100	1870	4570

(1) DESIGN OF MAJOR DRAINAGEWAYS AND LORSON BRIDGE BASED ON 100-YEAR FIS DISCHARGES.

(2) ALL DISCHARGES REPRESENT EXISTING BASIN DEVELOPMENT CONDITIONS.

WIDEFIELD WATER AND SANITATION DISTRICT GENERAL NOTES

1. All utility construction to be conducted in conformance with the current Widefield Water and Sanitation District specifications. Compaction requirements shall be 95% Standard Proctor as determined by ASTM D698, unless otherwise approved by the Widefield Water and Sanitation District or a higher standard is imposed by another agency having right-of-way jurisdiction.
2. All materials and workmanship shall be subject to inspection by the Widefield Water and Sanitation District. The Widefield Water and Sanitation District reserves the right to accept or reject any such materials and workmanship that does not conform to its standards and specifications.
3. The Developer or his Engineer has located all fire hydrants and future service stubs. Any required realignment, either horizontal or vertical, shall be at the expense of the Developer.
4. All ductile iron pipe, to include fittings, valves and fire hydrants will be wrapped with polyetheylene tubing, and electrically isolated.
5. All ductile iron pipe and fittings shall be double bonded. Specifications for cathodic protection on both Dip mains and PVC mains is specified in the Standards and Specifications.
6. PVC main lines shall be installed with coated No. 12 tracer wire.
7. The Contractor is required to notify the Widefield Water and Sanitation District (390-7111) a minimum of 48 hours and a maximum of 96 hours prior to the start of construction. The Contractor shall also notify affected utility companies 48 hours prior to construction adjacent to the known utility lines.
8. The location of all utilities as shown on these drawings are approximate only. The location of all utilities shall be verified prior to construction by the Contractor.
9. The Contractor shall field excavate and verify the vertical and horizontal location of all tie-ins. Contractor shall notify the Widefield Water and Sanitation District and the Engineer of the field verified information prior to construction.
10. All bends shall be field staked prior to construction.
11. Any water utility material removed and not reused shall be returned to the Widefield Water and Sanitation District if the District so requests.
12. The Contractor shall at his expense support and protect all utility mains so that they will function continuously during construction. Should a utility main fail as a result of the Contractor's operation, it will be replaced immediately by either the Contractor or the Widefield Water and Sanitation District at full cost of labor and materials to the Contractor.
13. Any pumping or bypass operations must be reviewed and approved prior to execution by both the Widefield Water and Sanitation District and the Engineer.
14. Contractor must replace or repair any damage to all surface improvements, including but not limited to fences, curb and gutter and/or asphalt that may be caused during construction.
15. All water lines 6" and larger, and all sewer lines 8" and larger, shall have as "As-Built" plans prepared and approved prior to final acceptance by the Widefield Water and Sanitation District.
16. Prior to construction, a Pre-Construction Conference is required a minimum of 72 hours in advance of commencement of work. To set the Pre-Construction conference, contact Brandon Bernard, Water Superintendent (464-2051) and/or Mark McCormick, Wastewater Superintendent (491-0128) of the Widefield Water and Sanitation District for a time. No Pre-Construction Conference times will be set until 4 sets of signed drawings are received by the Widefield W & S District.
    Pre-Construction Date /Initials_____.



VICINITY MAP
SCALE: N.T.S.

PCD FILE # CDR-XX-XX-X

DEVELOPER:

Lorson Development
212 N. Wahsatch #301
Colorado Springs, CO
80903

PREPARED BY:

Kiowa Engineering Corporation
1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342

0 50' 100'

SCALE: 1"=50'

Is blue line correct? Will floodplain be revised by grading here?

Label or provide legend

Label or provide legend

FUTURE LORSON EAST FSD

FUTURE LORSON EAST FILINGS

LORSON BLVD.

STA 82+51.43 LORSON BOULEVARD = STA 10+00 EAST FORK STREAM PROFILE FOR DESIGN OF LORSON BLVD., SEE PLANS BY CORE ENGINEERING. FOR LAY OUT SEE SHEET 3.

FOR GRADING WITHIN FUTURE LORSON EAST FILINGS, SEE OVERALL GRADING PLAN AND MDDP PREPARED BY CORE ENGINEERING.

EAST FORK JIMMY CAMP CREEK

SHADING DENOTES LIMITS OF SOIL/RIPRAP

TB4

TB3

PROP. 12" WATER

64' ROW

44' FC-FC

FOR GRADING & EROSION CONTROL, SEE SHEET 8.

CAUTION!!!

EXISTING UTILITIES TO BE PROTECTED FROM DISTURBANCE WHEN INSTALLING BRIDGE AND INFRASTRUCTURE.

EX. SS

EXISTING SD DETENTION BASIN

THE MEADOWS AT LORSON RANCH FILING 3

UNPLATTED LORSON REANCH

Q100=5200 cfs (FIS)

84'-0" ROW

F/C

STA 82+51.43 LORSON BOULEVARD= STA 10+00.00 PROFILE RD EL = 5709.63

PROFILE LEGEND

100-YEAR HGL

EXISTING INVERT

HEC RAS CROSS-SECTION /RIVER STATION

12200

100 YR HGL

5707.1

5695.0

5694.0

5693.5

S=0.26%

EXISTING INVERT

5688.0

X-SEC 9824

X-SEC 9682

STA 11+60 END RIPRAP INVERT AND BANKS

XSEC 9573

STA 10+42

STA 9+58 XSEC 9459

X-SEC 9350

STA 8+15 BEGIN RIPRAP INVERT AND BANKS

X-SEC 9224.7

15+00 14+00 13+00 12+00 11+00 10+00 9+00 8+00 7+00

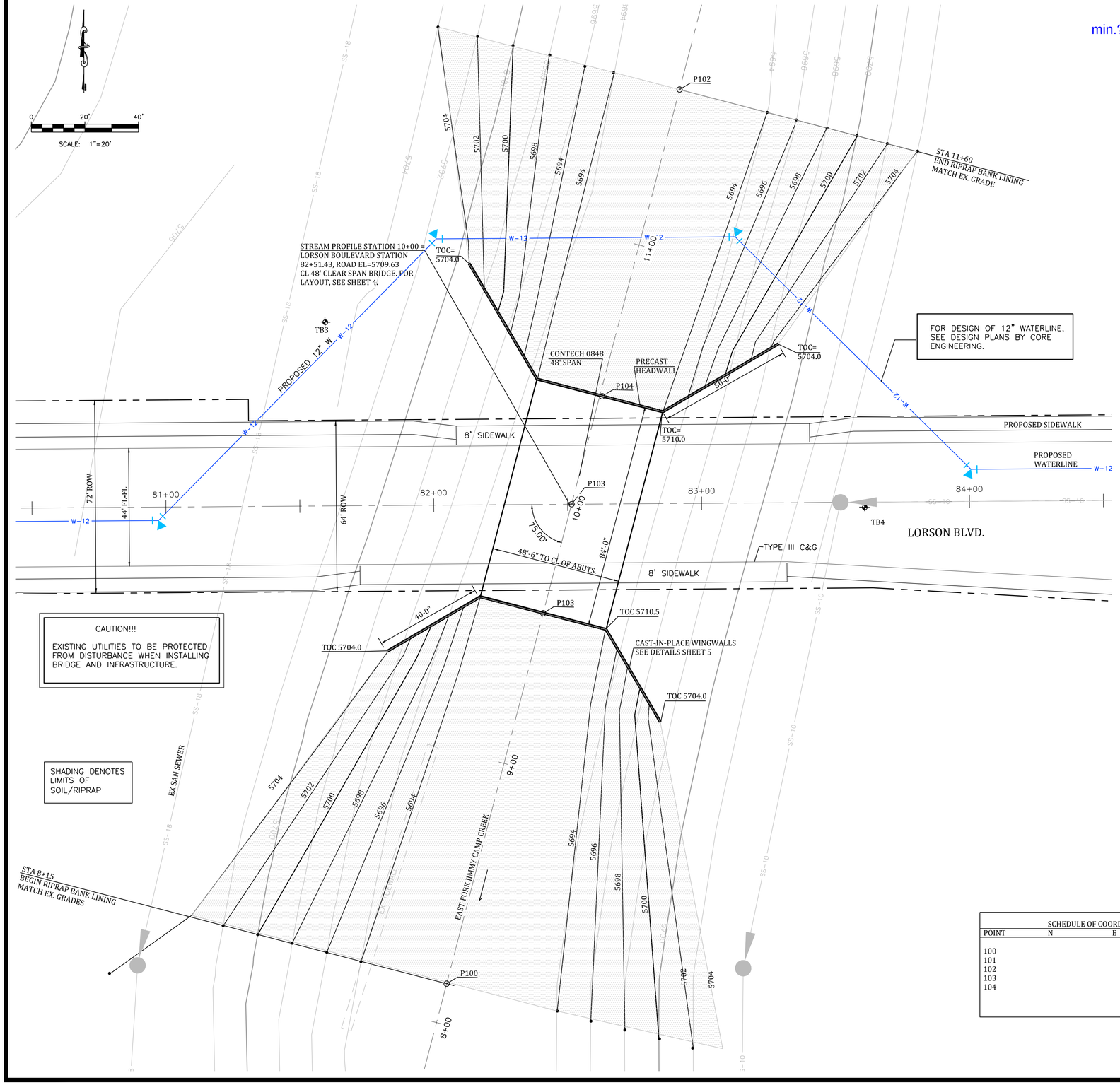
Kiowa Engineering Corporation
1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342

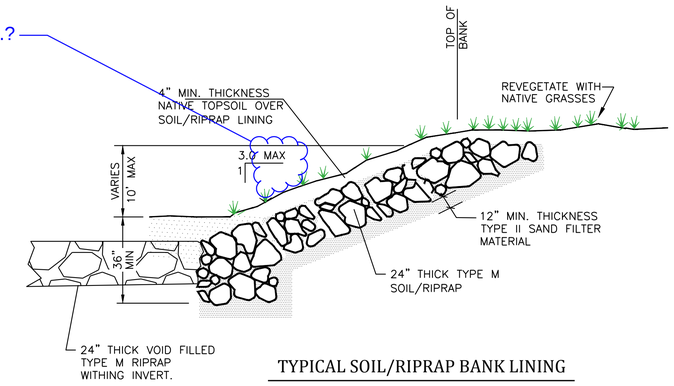
LORSON RANCH
LORSON BOULEVARD BRIDGE
PLAN & PROFILE
EL PASO COUNTY, COLORADO

Project No.:	17001
Date:	1/5/18
Design:	RNW
Drawn:	EAK
Check:	RNW
Revisions:	

2

17001 2-8.dwg/Jan 04, 2018/4:04pm





TYPICAL SOIL/RIPRAP BANK LINING

SCALE : N.T.S.

SOIL RIPRAP

THE SOIL MATERIAL SHALL BE NATIVE OR TOPSOIL AND MIXED WITH SIXTY FIVE PERCENT (65%) RIPRAP AND THIRTY FIVE PERCENT (35%) SOIL BY VOLUME.

SOIL RIPRAP SHALL CONSIST OF A UNIFORM MIXTURE OF SOIL AND RIPRAP WITHOUT VOIDS.

CONTRACTOR SHALL COOPERATE WITH ENGINEER IN OBTAINING AND PROVIDING SAMPLES OF ALL SPECIFIED MATERIALS.

CONTRACTOR SHALL SUBMIT CERTIFIED LABORATORY TEST CERTIFICATES FOR ALL ITEMS REQUIRED FOR SOIL RIPRAP.

RIPRAP USED SHALL BE THE TYPE DESIGNATED ON THE DRAWINGS AND SHALL CONFORM TO TABLE SHOWN TO THE RIGHT.

THE RIPRAP DESIGNATION AND TOTAL THICKNESS OF RIPRAP SHALL BE AS SHOWN ON THE DRAWINGS. THE MAXIMUM STONE SIZE SHALL NOT LARGER THAN THE THICKNESS OF THE RIPRAP.

NEITHER WIDTH NOR THICKNESS OF A SINGLE STONE OF RIPRAP SHALL BE LESS THAN ONE-THIRD (⅓) OF ITS LENGTH.

THE SPECIFIC GRAVITY OF THE RIPRAP SHALL BE TWO AND ONE-HALF (2.5) OR GREATER.

MINIMUM DENSITY FOR ACCEPTABLE RIPRAP SHALL BE ONE HUNDRED AND SIXTY FIVE (165) POUNDS PER CUBIC FOOT.

RIPRAP SPECIFIC GRAVITY SHALL BE ACCORDING TO THE BULK-SATURATED, SURFACE-DRY BASIS, IN ACCORDANCE WITH AASHTO T85.

THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN FORTY PERCENT (40%) AFTER FIVE HUNDRED (500) REVOLUTIONS WHEN TESTED IN ACCORDANCE WITH AASHTO T96.

THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN TEN (10%) AFTER FIVE (5) CYCLES WHEN TESTED IN ACCORDANCE WITH AASHTO T104 FOR LEDGE ROCK USING SODIUM SULFATE.

THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN TEN PERCENT (10%) AFTER TWELVE (12) CYCLES OF FREEZING AND THAWING WHEN TESTED IN ACCORDANCE WITH AASHTO T103 FOR LEDGE ROCK, PROCEDURE A. ROCK SHALL BE FREE FROM CALCITE INTRUSIONS.

GRADATION:
A. EACH LOAD OF RIPRAP SHALL BE REASONABLY WELL GRADED FROM THE SMALLEST TO THE LARGEST SIZE SPECIFIED.
B. STONES SMALLER THAN THE TWO TO TEN PERCENT (2%-10%) SIZE WILL NOT BE PERMITTED IN AN AMOUNT EXCEEDING TEN PERCENT (10%) BY WEIGHT OF EACH LOAD.
C. CONTROL OF GRADATION SHALL BE BY VISUAL INSPECTION. HOWEVER IN THE EVENT THE ENGINEER DETERMINES THE RIPRAP TO BE UNACCEPTABLE, THE ENGINEER SHALL PICK TWO (2) RANDOM TRUCKLOADS TO BE DUMPED AND CHECKED FOR GRADATION.
1) MECHANICAL EQUIPMENT AND LABOR NEEDED TO ASSIST IN CHECKING GRADATION SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

CONCRETE RUBBLE AND/OR BROKEN ASPHALT PAVEMENT SHALL NOT BE ACCEPTABLE FOR USE AS AN ALTERNATIVE TO ROCK RIPRAP.

ROUNDED RIPRAP (RIVER ROCK) IS NOT ACCEPTABLE, UNLESS SPECIFICALLY DESIGNATED ON THE DRAWINGS.

delete "113"?

SCHEDULE OF COORDINATES

POINT	N	E	DESCRIPTION
100			BEGIN RIPRAP STA 8+15
101			CL/CL ROADWAY/STREAM PROFILE
102			END RIPRAP STA 11+60113
103			SOUTH FACE OF BRIDGE
104			NORTH FACE OF BRIDGE

RIPRAP DESIGNATION	% SMALLLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D_{50} (INCHES)
TYPE VL	70-100	12	6
	50-70	9	
	35-50	6	
	2-10	2	
TYPE L	70-100	15	9
	50-70	12	
	35-50	9	
	2-10	3	
TYPE M	70-100	21	12
	50-70	18	
	35-50	12	
	2-10	4	
TYPE H	70-100	30	18
	50-70	24	
	35-50	18	
	2-10	6	
TYPE VH	70-100	41	24
	50-70	33	
	35-50	24	
	2-10	9	

*D_{50} = MEAN PARTICLE SIZE

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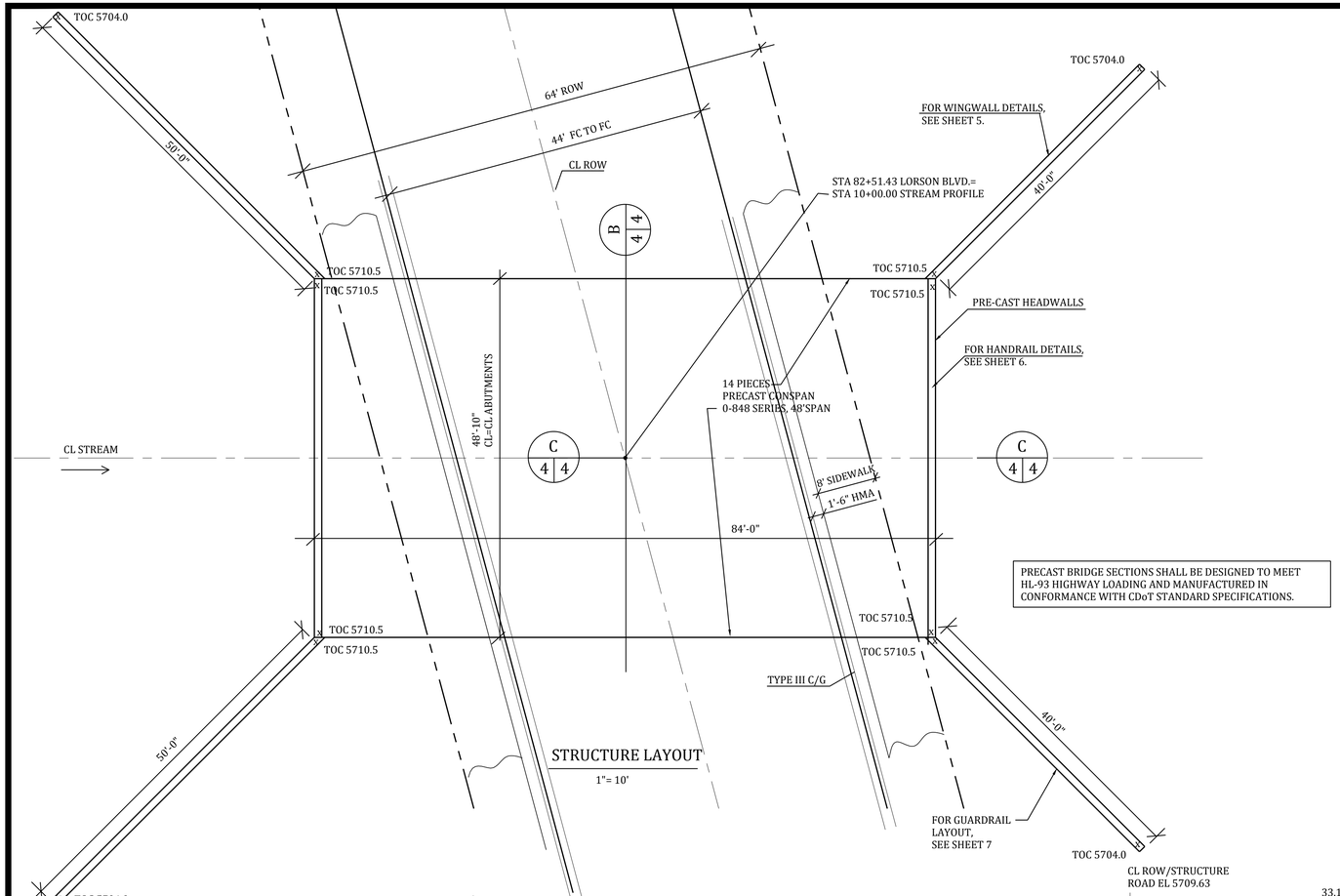
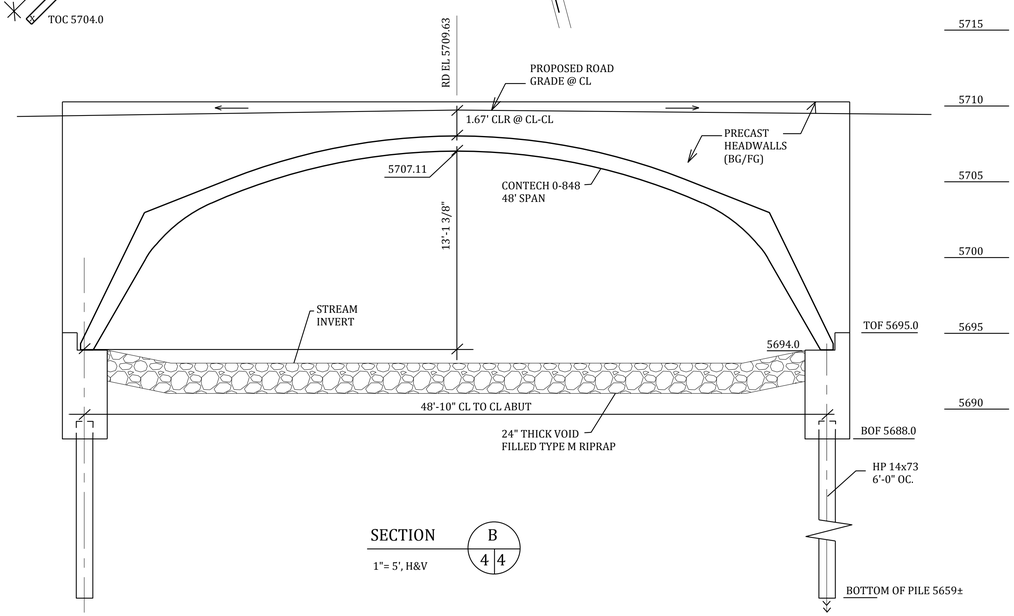
Colorado Springs Colorado 80904
(719)630-7342

LORSON RANCH
LORSON BOULEVARD BRIDGE
GENERAL BRIDGE PLAN
EL PASO COUNTY, COLORADO

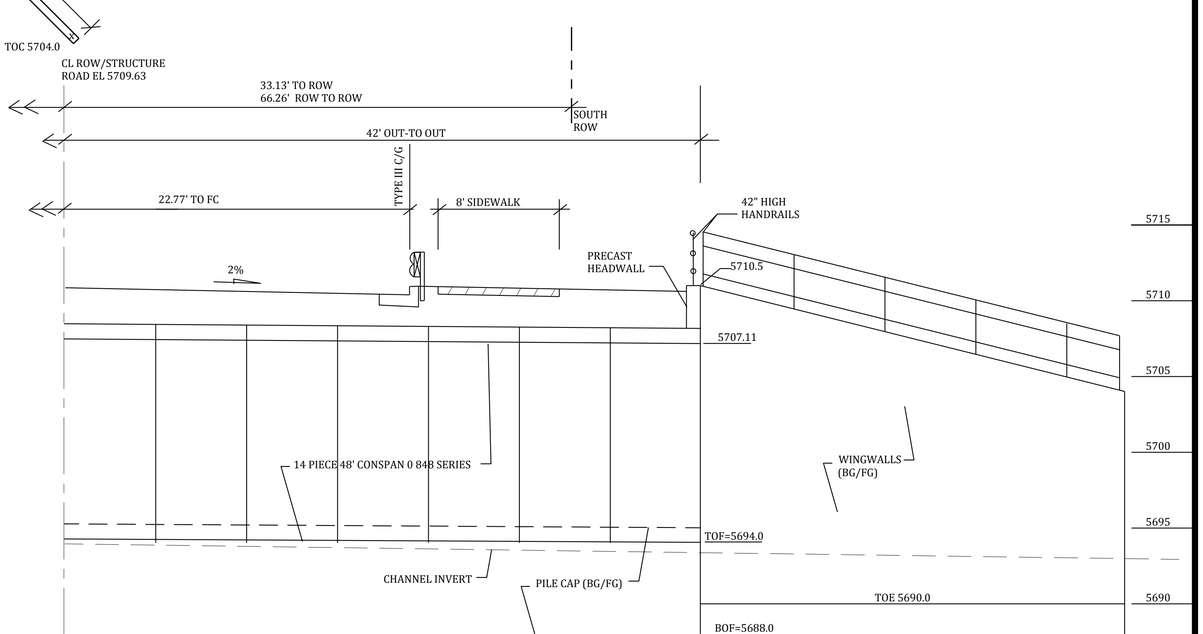
Project No.:	17001
Date:	1/5/18
Design:	RNW
Drawn:	EAK
Check:	RNW
Revisions:	

17001 2-8.dwg/Jan 04, 2018/4:04pm





SECTION B
4 4
1"= 5', H&V



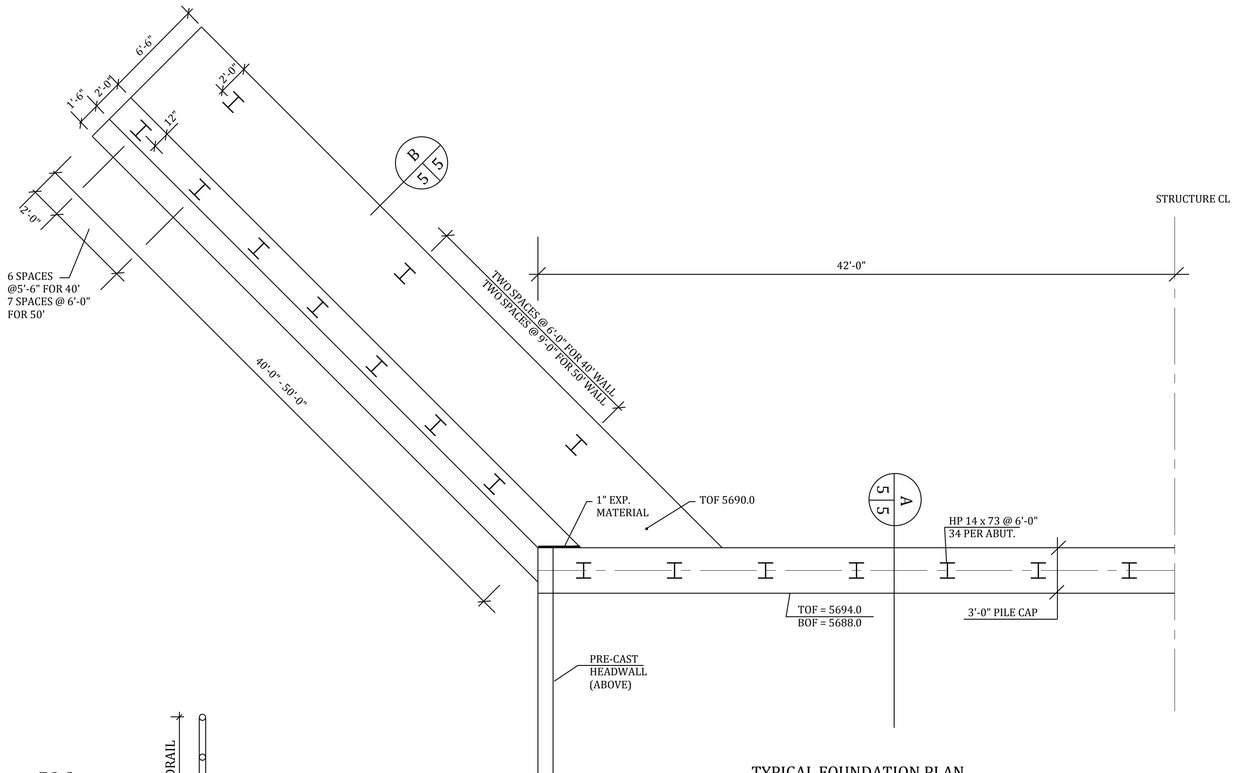
SECTION C
4 4
1"= 5', H&V

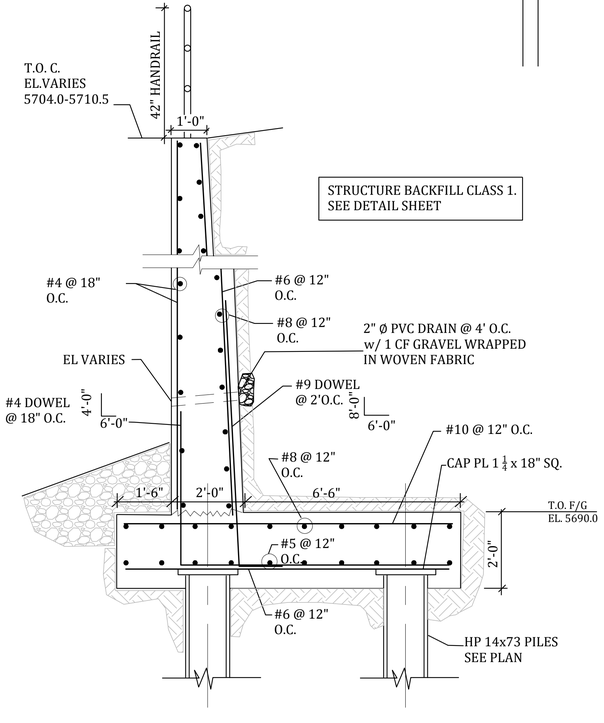
Kiowa
Engineering Corporation
1604 South 21st Street
Colorado Springs Colorado 80904
(719) 630-7342

LORSON RANCH
LORSON BOULEVARD BRIDGE
BRIDGE STRUCTURE LAYOUT
EL PASO COUNTY, COLORADO

Project No.:	17001
Date:	1/5/18
Design:	RNW
Drawn:	EAK
Check:	RNW
Revisions:	

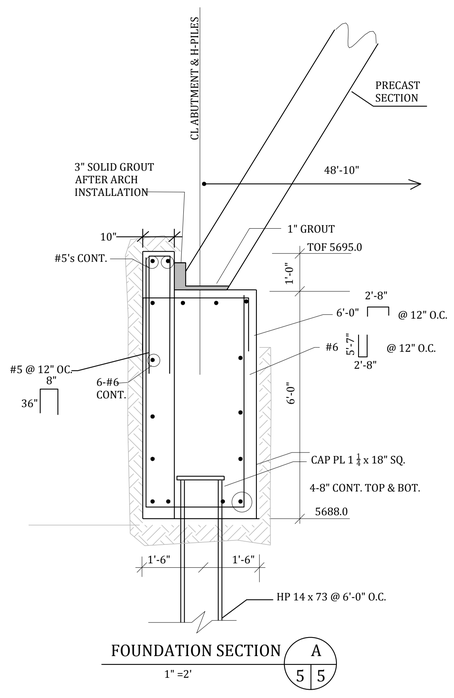
4



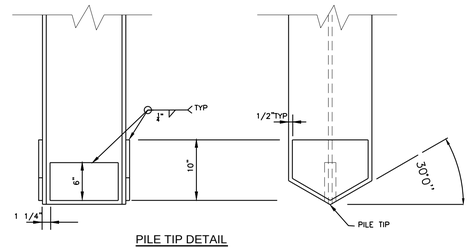


SECTION B
5 5
1"= 2', H&V

TYPICAL FOUNDATION PLAN
1"= 5'



FOUNDATION SECTION A
5 5
1" =2'



PILE TIP DETAIL
SCALE : N.T.S.
AN APPROVED
COMMERCIAL PILE
MAY BE USED

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Colorado Springs Colorado 80904
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LORSON RANCH
LORSON BOULEVARD BRIDGE
FOUNDATION PLAN & SECTIONS
EL PASO COUNTY, COLORADO

Project No.:	17001
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Revisions:	

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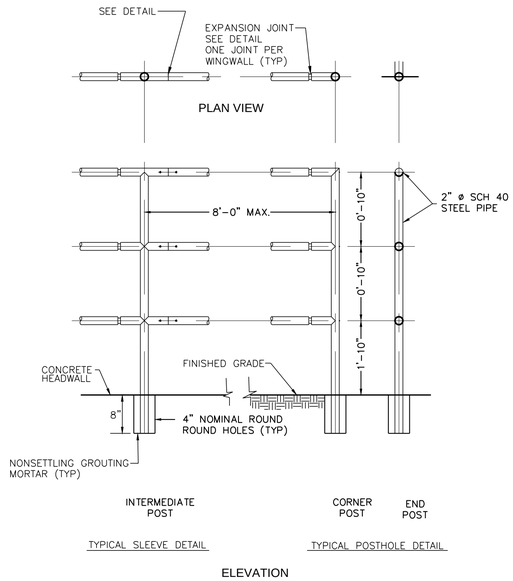
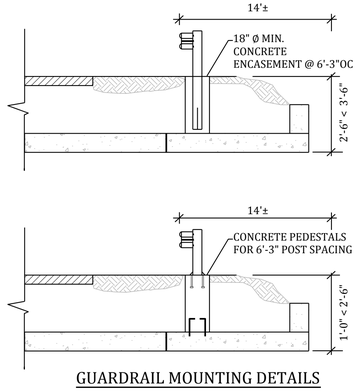
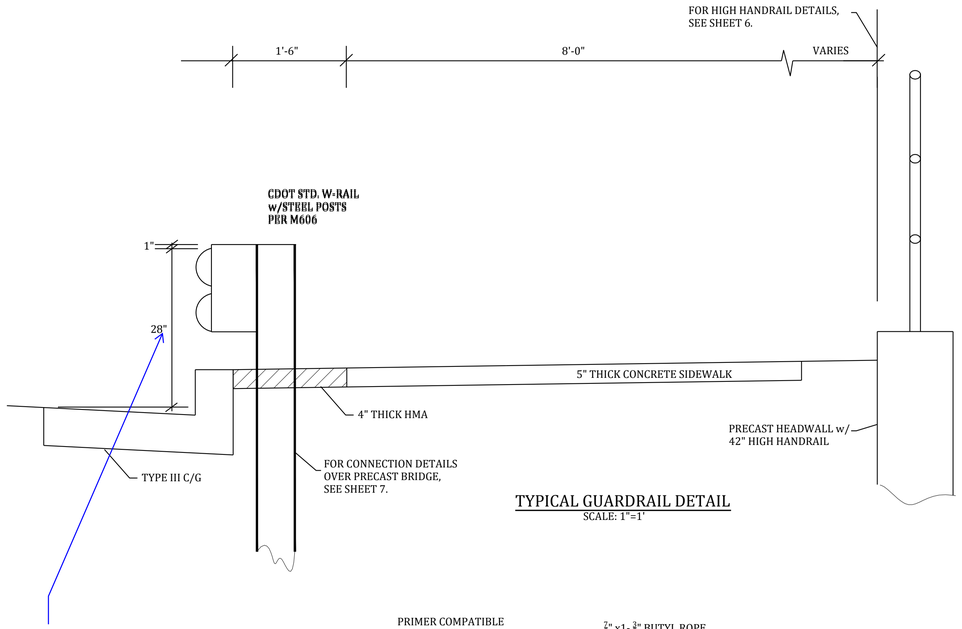


NOTE: GUARDRAIL POST SPACING OVER THE PRECAST SECTIONS SHALL BE IN CONFORMANCE WITH CDoT M-606.



GUARDRAIL MOUNTING DETAILS

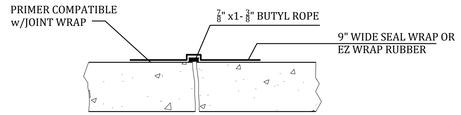


TYPICAL GUARDRAIL DETAIL
SCALE: 1"=1'

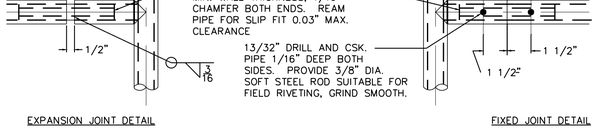
Revise dimensions per:
https://www.codot.gov/business/designsupport/bulletins_manuals/dps-memos/psm-2015-04/at_download/file

https://www.codot.gov/business/designsupport/standard-plans/2012-m-standards-plans/2012-m-standards-pdfs/m-606-1_mgs_type_3_w-beam/m-606-1_mgs_type_3_w-beam

https://www.codot.gov/business/designsupport/standard-plans/guardrail-faq/view



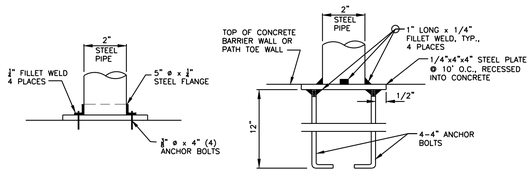
TYPICAL JOINT SEAL



EXPANSION JOINT DETAIL

FIXED JOINT DETAIL

HANDRAIL DETAIL
SCALE: NTS



ALTERNATE
HANDRAIL POST CONNECTION DETAIL
SCALE : N.T.S.

HANDRAIL FINISH SHALL BE ONE COAT METAL PRIMER AND TWO COATS SHERWIN WILLIAMS "BRIDGE GREEN" COLOR, ACROLON 218 HS ACRYLIC POLYURETHANE, SEMI-GLOSS. COLOR SHALL BE VERIFIED BY THE ENGINEER.

BRIDGE GREEN CUSTOM MANUAL MATCH 844 COLORANT	OZ	32	64	128
LB-LAMP BLACK	2	16	–	–
PG-PHTH GREEN	10	–	–	–
TW-WHITE	2	46	–	–
YO-YELLOW OX	–	50	–	–
PB-PHTH	–	50	–	–
4 GALLON KIT B65T00654		ULTRADEEP 640335618		

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LORSON RANCH
LORSON BOULEVARD BRIDGE
SECTIONS AND TYPICAL DETAILS
EL PASO COUNTY, COLORADO

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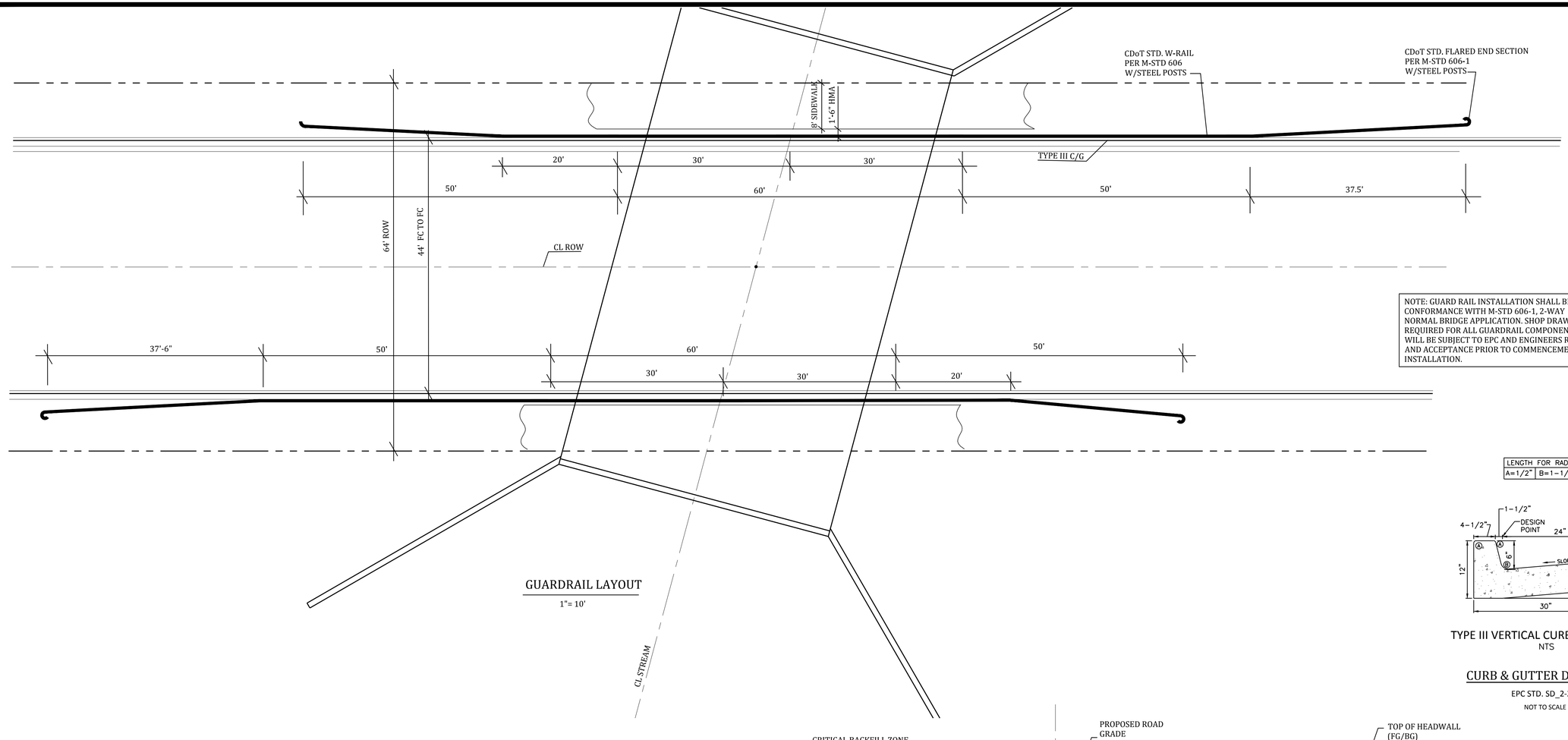


GUARDRAIL LAYOUT

1"= 10'

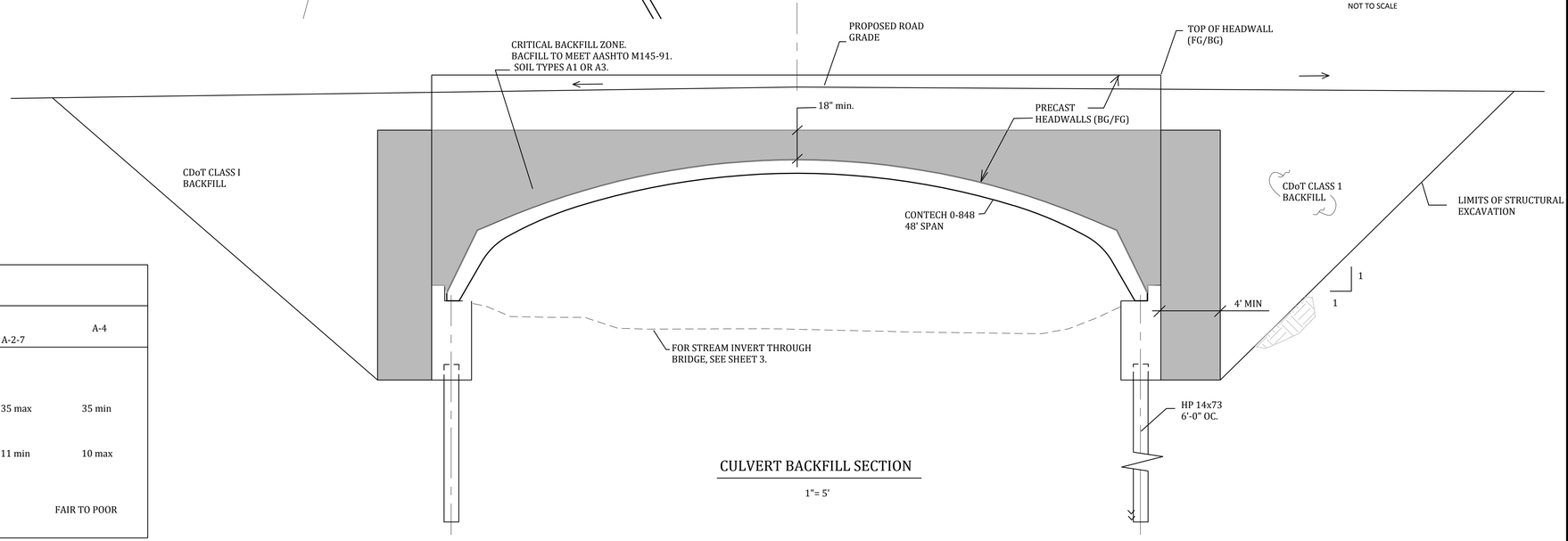
NOTE: GUARD RAIL INSTALLATION SHALL BE IN CONFORMANCE WITH M-STD 606-1, 2-WAY NORMAL BRIDGE APPLICATION. SHOP DRAWINGS REQUIRED FOR ALL GUARDRAIL COMPONENTS WILL BE SUBJECT TO EPC AND ENGINEERS REVIEW AND ACCEPTANCE PRIOR TO COMMENCEMENT OF INSTALLATION.

TYPE III VERTICAL CURB AND GUTTER
NTS

CURB & GUTTER DETAILS

EPC STD. SD_2-20

NOT TO SCALE



CULVERT BACKFILL SECTION

1"= 5'

BACKFILL DESCRIPTION (AASHTO M 145-91)

GROUP CLASSIFICATION	A-1		A-3	A-2				A-4
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7	
SIEVE ANALYSIS (100% PASSING 3" SIEVE)								
NO. 10	50 max							
NO.40	30 max	50 max	51 max					
NO. 200	15max	25 max	10 mac	35 max	35 max	35 max	35 max	35 min
CHARACTERISTICS OF FRACTION PASSING NO. 40 LIQUID LIMIT				40 max	41 max	11 min	11 min	10 max
USUAL TYPES OF SIGNIFICANT CONSTITUENT MATERIALS	GRAVEL & SAND		SAND					
GENERAL RATING AS SUB-GRADE	EXCELLENT TO GOOD							FAIR TO POOR

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LORSON RANCH
LORSON BOULEVARD BRIDGE
ROADWAY DETAILS
EL PASO COUNTY, COLORADO

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Seeding and mulching?

Verify silt fence location

Provide access road design.

FUTURE LORSON EAST FSD

FUTURE LORSON EAST FILINGS

LORSON BLVD.

STA 82+51.43 LORSON BOULEVARD = STA 10+00 EAST FORK STREAM PROFILE FOR DESIGN OF LORSON BLVD., SEE PLANS BY CORE ENGINEERING. FOR LAY OUT SEE SHEET 3.

FLOODWAY

EAST FORK JIMMY CAMP CREEK

SHADING DENOTES LIMITS OF SOIL/RIPRAP

show and label channel void-filled riprap

TOR= 5704.0

TB4

TB3

64' ROW

44' FC-FC

EXISTING SD DETENTION BASIN

THE MEADOWS AT LORSON RANCH FILING 3

UNPLATTED LORSON REANCH

Temporary seeding and mulching?

Should there be a note that VTCs are also provided at Lorson East access points?

Show and include all required grading in limits of disturbance. Grading needs to tie in to existing contours (both sides).

Add a statement regarding type and cover of vegetation.

LEGEND

LIMITS OF DISTURBANCE

Include all linetypes in legend; include existing property lines/proposed tract lines; utility easements.

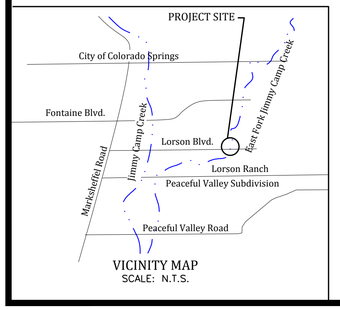
VTC — VEHICLE TRACKING CONTROL

CWA — CONCRETE WASHOUT AREA

SSA — STABILIZED STAGING AREA

SF — SILT FENCE

TOR=TOP OF ROCK



VICINITY MAP
SCALE: N.T.S.

50' 100'

SCALE: 1"=50'

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CONCRETE WASHOUT AREA PLAN

SECTION A

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).

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.

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)

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LORSON BOULEVARD BRIDGE
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SEEDING AND MULCHING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - AREA OF SEEDING AND MULCHING.
   - TYPE OF SEED MIX
2. ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COARSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAP WEED AND LEAFY SPURGE.
3. THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLDY OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO REGULATING AGENCY UPON REQUEST.
4. DRILL SEEDING MIX SHALL CONFORM TO THE TABLE ON THE RIGHT.
5. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO CONTRACTOR AND FORWARDED TO THE REGULATING AGENCY'S GESC INSPECTOR.
6. THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS).
7. PERMANENT SEED MIX SHALL BE USED UNLESS OTHERWISE APPROVED BY THE REGULATING AGENCY.
8. ALL AREAS TO BE SEEDED AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES (LOOSE DEPTH). HAULROADS AND OTHER COMPACTED AREAS SHALL BE LOOSENED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL.
9. SOIL IS TO BE THOROUGHLY LOOSENED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING. THE TOP 6 INCHES OF THE SEED BED SHALL BE FREE OF ROCKS GREATER THAN 4 INCHES AND SOIL CLODS GREATER THAN 2 INCHES. SEEDING OVER ANY COMPACTED AREAS THAT HAVEN'T BEEN THOROUGHLY LOOSENED SHALL BE REJECTED.
10. SEED IS TO BE APPLIED USING A MECHANICAL DRILL TO A DEPTH OF 1/4 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MULCH SHALL CONSIST OF LONG-STEMMED STRAW. AT LEAST 50 PERCENT OF THE MULCH, BY WEIGHT, SHALL BE 10 INCHES OR MORE IN LENGTH. MULCH SHALL BE APPLIED AND MECHANICALLY ANCHORED TO A DEPTH OF AT LEAST 2 INCHES. MULCH SHALL BE APPLIED AT A RATE OF 4000 LB. OF STRAW PER ACRE.
11. IF THE PERMITTEE DEMONSTRATES TO THE REGULATING AGENCY THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFORMLY BROADCAST AT TWO TIMES THE DRILLED RATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY 1/4 INCH, THEN ROLLED TO COMPACT, THEN MULCHED AS SPECIFIED ABOVE.
12. SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 30 DAYS OF INITIAL EXPOSURE OR 7 DAYS AFTER GRADING IS SUBSTANTIALLY COMPLETE IN A GIVEN AREA (AS DEFINED BY THE REGULATING AGENCY). THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
13. MULCH SHALL BE APPLIED WITHIN 24 HOURS OF SEEDING.
14. TACKIFIER SHOULD BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.

SEEDING AND MULCHING MAINTENANCE NOTES

1. SEEDED AND MULCHED AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY FOR A PERIOD OF TWO YEARS FOLLOWING INITIAL SEEDING. REPAIRS AND RE-SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
2. REQUIRED COVERAGE FOR STANDARD, OPEN SPACE AND LOW GROWTH SEED MIXES SHALL BE DEFINED AS FOLLOWS:
   1. THREE (3) PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3 INCHES. THE 3 PLANTS PER SQUARE FOOT SHALL BE OF THE VARIETY AND SPECIES FOUND IN THE DOUGLAS COUNTY-APPROVED MIX.
   2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT).
   3. FREE OF ERODED AREAS.
   4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
3. REQUIRED COVERAGE FOR TURF GRASS AREAS SHALL BE DEFINED AS FOLLOWS:
   1. AT LEAST 80% VEGETATIVE COVER OF GRASS SPECIES PLANTED.
   2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT.
   3. FREE OF ERODED AREAS.
   4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC CRITERIA MANUAL.
4. RILL AND GULLY EROSION SHALL BE FILLED WITH TOPSOIL PRIOR TO RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY THE COUNTY.

SEEDING AND MULCH

NTS

SM

PROJECT SPECIFIC GRADING AND EROSION CONTROL NOTES

1. All earthwork required of this construction shall be completed in accordance with all applicable sections of the Project Specifications and Soil Investigation Report (Geotechnical Report).
2. Rubbish including timber, concrete rubble, trees, brush, and asphalt shall not be backfilled adjacent to any of the structures or be in the placement of any unclassified fill. The Contractor shall be responsible for the removal and hauling of such materials to a suitable spoil area. Costs associated with the removal of such materials shall be paid for as documented in the Project Specifications.
3. Excess excavation shall become the property of the Contractor and shall be disposed of at the Contractor's expense. The cost of haulage and spoiling of excess excavated materials shall be paid for as documented in the Project Specifications.
4. Water shall be used as a dust palliative as required and shall be included in the cost for earthwork item(s). No separate payment will be made for dust control associated with the site construction.
5. The road grades shall be cleared of vegetation and the topsoil stockpiled for later use.
6. All grading shall be in conformance with the Geotechnical Report for the area.
7. Placement of fill for roadway embankments shall be completed in conformance with the Geotechnical Report.
8. Grading contours shown on this plan are to final grade.
9. Compaction under filled areas, including roadway and detention basin embankments, shall be 95 percent of the maximum Standard Proctor Density (ASTM D698) at two (2) percent of optimum moisture content.
10. No rubble or debris shall be placed in the backfill under any of the proposed buildings, streets, curb & gutter, sidewalk and drainage structures or within five (5) feet of a building footprint. Properly graded rubble may be used in some locations as specified and verified by the Geotechnical Engineer.
11. Contractor is responsible for reviewing the site prior to bidding to verify site conditions.
12. Contractor is responsible for providing erosion control measures as approved by the El Paso County PCD Engineering Division and as may be required by the El Paso County Inspector.
13. All slopes equal to or greater than 3:1 shall require anchored soil retention blanket (SRB), Geocoir 700 or equal.
14. The Developer is responsible for maintaining erosion control measures until a mature stage of vegetation is established.
15. All soils used for fill must be approved by a representative of the Geotechnical Engineer.
16. All natural ground to receive fill must be properly scarified, watered and compacted prior to placing fill.
17. The Contractor is solely responsible for the design, maintenance and operation of any required dewatering system. The Contractor shall perform such independent investigation as he deems necessary to satisfy himself as to the subsurface groundwater conditions and unstable soil conditions to be encountered throughout the construction. Contractor shall coordinate the dewatering system with El Paso County when associated with public facilities.
18. No fill shall be placed, spread or rolled while it is frozen, thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until a representative of the Geotechnical Engineer indicates that the moisture content and density of the previously placed fill are as specified. Fill surfaces may be scarified and recompacted after rainfall if necessary, to obtain proper moisture density relation.
19. Additional erosion control structures and/or grading may be required at the time of construction.
20. Sediment removal for erosion control facilities shall be performed continuously for proper function.
21. Base mapping was provided by Core Engineering. The date of the last survey update was January 2016.
22. Proposed Construction Schedule:
    Begin Construction: pending
    End Construction: pending
    Total Site Area = 5 Acres
23. Area to be disturbed = 2.5 Acres (est.).
    Existing 100-year runoff coefficient = 0.25
    Proposed 100-year runoff coefficient = 0.25
    Existing Hydrologic Soil Groups: B/C
    (B ASCALON SANDY LOAM)
    (C MANZANST CLAY LOAM)
24. Site is currently undeveloped and covered with native grasses on moderate to steep slopes (3%-6%).
25. Site is located in the Jimmy Camp Creek Drainage Basin.

STANDARD EPC GRADING AND EROSION CONTROL NOTES

1. Construction may not commence until a Construction Permit is obtained from Planning and Community Development Department (PCD) and a Preconstruction Conference is held with PCD Inspections.
2. Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off site waters, including wetlands.
3. Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations to regulations and standards must be requested, and approved in writing.
4. A separate Stormwater Management Plan (SWMP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. During construction the SWMP is the responsibility of the designated Stormwater Manager. The SWMP shall be located on site at all times and shall be kept up to date with work progress and changes in the field.
5. Once the ESQCP has been issued, the contractor may install the initial stage erosion and sediment control BMP's as indicated on the GEC. A preconstruction meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County PCD inspections staff.
6. Soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within 21 calendar days after final grading, or earth disturbance, has been completed. Disturbed areas and stockpiles, which are not at final grade but will remain dormant for longer than 30 days, shall also be mulched within 21 days after interim grading. And area that is going to remain an interim for more than 60 days shall also be seeded. All temporary soil erosion control measures and BMP's shall be maintained until permanent soil erosion control measures are implemented and established.
7. Temporary soil erosion control facilities shall be removed and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to standards and specification prescribed in the DCM Volume II and the Engineering Criteria Manual (ECM) appendix I.
8. All persons engaged wit hearth disturbance shall implement and maintain acceptable soil erosion and sediment control measures including BMP's in conformance with the erosion control technical standards of the Drainage Criteria Manual (DCM) Volume II and in accordance with the Stormwater Management Plan (SWMP).
9. All temporary erosion control facilities including BMPs and all permanent facilities intended to control erosion of any earth disturbance operations shall be installed as defined in the approved plans, the SWMP and the DCM Volume II and maintained throughout the duration of the earth disturbance operation.
10. Any earth disturbance shall be conducted in such a manner so as to effectively reduce accelerated soil erosion and resulting sedimentation. All disturbances shall be designed, constructed, and completed so that the exposed area of any disturbed land shall be limited to the shortest practical period of time.
11. Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be designed to limit the discharge to a non-erosive velocity.
12. Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to runoff to State Waters, including any surface or subsurface storm drainage system or facilities.
13. Erosion control blanketing is to be used on slopes steeper than 3:1.
14. Building, construction, excavation, or other waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. BMPs may be required by El Paso County Department of Public Works if deemed necessary, based on specific conditions and circumstances.
15. Vehicle tracking of soils and construction debris off-site shall be minimized. Materials tracked offsite shall be cleaned up and properly disposed of immediately.
16. Contractor shall be responsible for the removal of all wastes from the construction site for disposal in accordance with local and State regulatory requirements. No construction debris, tree slash, building material wastes or unused building materials shall be buried, dumped, or discharged at the site.
17. The owner, site developer, contractor, and/or their authorized agents shall be responsible for the removal of all constructions debris, dirt, trash, rock, sediment, and sand that may accumulate in the storm sewer or other drainage conveyance and stormwater appurtenances as a result of site development.
18. The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels.
19. No chemicals are to be used by the contractor, which have the potential to be released in stormwater unless permission for the use of a specific chemical is granted in writing by the ECM Administrator. In granting the use of such chemicals, special conditions and monitoring may be required.
20. Bulk storage structures for petroleum products and other chemicals shall have adequate protection so as to contain all spills and prevent any spilled material from entering State Waters, including any surface or subsurface storm drainage system or facilities.
21. No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter or in the ditchline.
22. Individuals shall comply with the "Colorado Water Quality Control Act" (Title 25, Article8, CRS), and the Clean Water Act" (33 USC 1344), in addition to the requirements included in the DCM Volume II and the ECM Appendix I. All appropriate permits must be obtained by the Contractor prior to the construction (NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and laws, rules, or regulations of other Federal, State, or County Agencies, the more restrictive laws, rules, or regulations shall apply.
23. All construction traffic must enter/exit the site at approved construction access points.
24. Prior to actual construction the permitee shall verify the location of existing utilities.
25. A water source shall be available on site during earthwork operations and utilized as required to minimize dust from earthwork equipment and wind.
26. The soils report for this site entitled *Geotechnical Report Fontaine Boulevard Bridge over East Tributary Jimmy Camp Creek, Lorson Ranch, El Paso county, Colorado, prepared by RMG engineers, Sept. 24, 2016* and shall be considered a part of these plans.
27. At least ten days prior to the anticipated start of construction, for projects that will disturb 1 acre or more, the owner or operator of construction activity shall submit a permit application for stormwater discharge to the Colorado Department of Public Heath and Environment, Water Quality Division. The application contains certification of completion of a stormwater management plan (SWMP), of which this grading and erosion control plan may be a part. For information or application materials contact:
    Colorado Department of Public Health and Environment
    Water Quality Control Division
    WQCD - Permits
    4300 Cherry Creek Drive South
    Denver, Colorado 80246-1530
    Attn: Permits Unit

SEED MIX

AREAS DISTURBED BY THE EARTHWORK SHALL BE PERMANENTLY REVEGETATED WITH NATIVE GRASSES. NATIVE SEED MIX FOR THIS PROJECT SHALL BE AS FOLLOWS:

SPECIES		lbs/acre
WESTERN WHEAT GRASS	*Pasopyrum smithii*	3.0
SIDEOATS GRAMA	*Boutelova curtipendula*	2.0
SLENDER WHEAT GRASS	*Elymus trachycaulus*	2.0
LITTLE BLUESTEM	*Schizachyrium scoparium*	2.0
BLUE GRAMA	*Boutelova gracilis*	0.5
SWITCH GRASS	*Panicum virgatum*	2.0
JUNE GRASS	*Koeleria cristata*	0.5
SAND DROPSEED	*Sporobolus cryptandrus*	0.5
		12.5 lbs

SEEDING APPLICATION: DRILL SEED 1/4" TO 1/2" INTO TOPSOIL. IN AREAS INACCESSIBLE TO A DRILL, HAND BROADCAST AT DOUBLE THE RATE AND RAKE 1/4" TO 1/2" INTO THE TOPSOIL.
MULCHING APPLICATION: 1-1/2 TONS NATIVE HAY PER ACRE, MECHANICALLY CRIMPED INTO THE TOPSOIL OR HYDROMULCH.

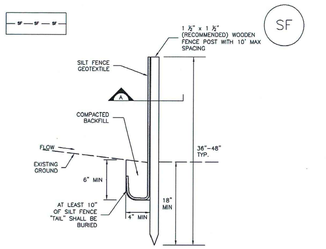
Kiowa Engineering Corporation
1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342

LORSON RANCH
LORSON BOULEVARD BRIDGE
EROSION CONTROL DETAILS
EL PASO COUNTY, COLORADO

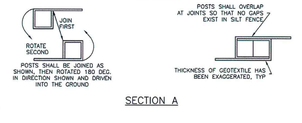
Project No.:	17001
Date:	1/5/18
Design:	RNW
Drawn:	EAK
Check:	RNW
Revisions:	

10

Silt Fence (SF) SC-1



SILT FENCE



SECTION A

SF-1. SILT FENCE

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

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

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

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

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

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

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "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.

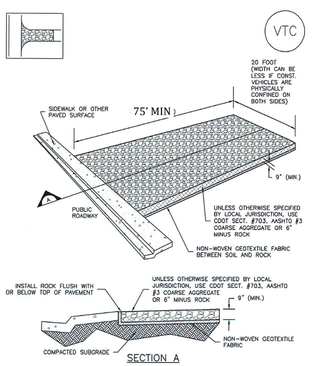
6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

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.

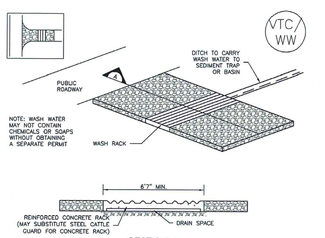
Vehicle Tracking Control (VTC) SM-4



SECTION A

VTC–1. AGGREGATE VEHICLE TRACKING CONTROL

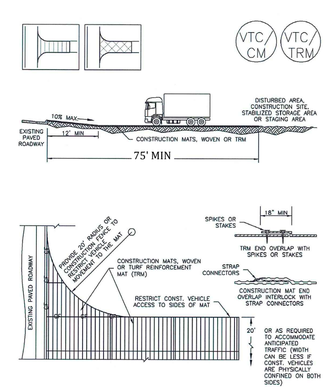
SM-4 Vehicle Tracking Control (VTC)



SECTION A

VTC–2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

Vehicle Tracking Control (VTC) SM-4



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

SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

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

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

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

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

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

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

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

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

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

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

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

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

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

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

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Markup Summary

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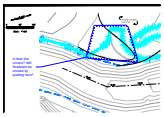

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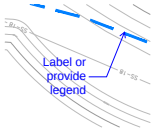

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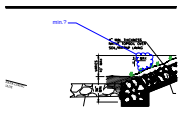

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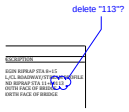

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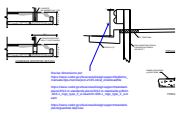

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https://www.codot.gov/business/designsupport/standard-plans/guardrail-faq/view

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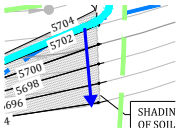

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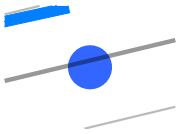

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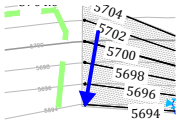

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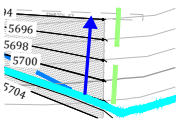

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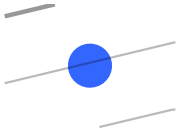

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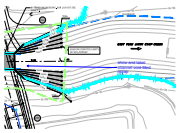

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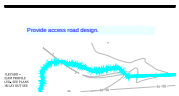

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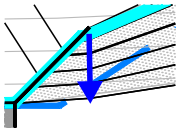

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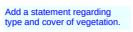
Include all linetypes in legend; include existing property lines/proposed tract lines; utility easements.



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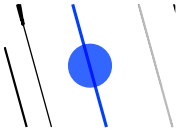

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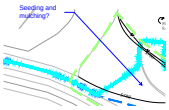

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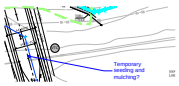
Checkmark: Unchecked
Author: dsdrice
Date: 1/30/2018 11:17:39 AM
Color:

Seeding and mulching?



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Status:
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Author: dsdrice
Date: 1/30/2018 11:17:11 AM
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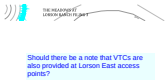
Temporary seeding and mulching?



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Author: dsdrice
Date: 1/29/2018 3:19:57 PM
Color:

Should there be a note that VTCs are also provided at Lorson East access points?

Subject: Callout
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Status:
Checkmark: Unchecked
Author: dsdrice
Date: 1/29/2018 2:50:56 PM
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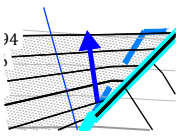
Show and include all required grading in limits of disturbance. Grading needs to tie in to existing contours (both sides).



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Status:
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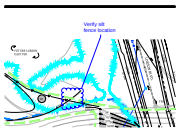
Author: dsdrice
Date: 1/30/2018 11:20:05 AM
Color:

label slope



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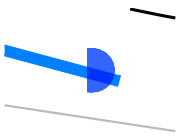
Status:
Checkmark: Unchecked
Author: dsdrice
Date: 1/29/2018 3:00:31 PM
Color:

Verify silt fence location

Subject: Highlight
Page Label: 8
Lock: Unlocked
Status:
Checkmark: Unchecked
Author: dsdrice
Date: 1/29/2018 2:46:03 PM
Color:



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Author: dsdrice
Date: 1/29/2018 2:48:22 PM
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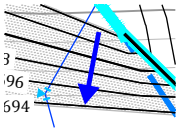

Subject: Arrow
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Status:
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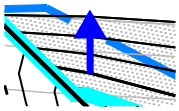
Author: dsdrice
Date: 1/30/2018 11:20:05 AM
Color:

label slope



Subject: Arrow
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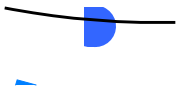
Status:
Checkmark: Unchecked
Author: dsdrice
Date: 1/30/2018 11:19:56 AM
Color:

label slope



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Author: dsdrice
Date: 1/29/2018 2:46:32 PM
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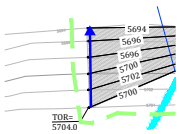

Subject: Arrow
Page Label: 8
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Status:
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Author: dsdrice
Date: 1/30/2018 11:20:27 AM
Color:

label slope

Subject: Highlight
Page Label: 8
Lock: Unlocked
Status:
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Author: dsdrice
Date: 1/29/2018 2:45:55 PM
Color: