



Purchasing Division

## ADDENDUM NO. 1

**DATE:** May 31, 2016  
**FROM:** City of Grand Junction Purchasing Division  
**TO:** All Offerors  
**RE:** Hallenbeck Reserboir #1 Downstream Slope Repair Project IFB-4245-16-DH

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. **The Mandatory Pre-Bid Meeting date has been changed to the following:**

**Mandatory Pre-Bid Meeting: Prospective bidders are required to attend the mandatory pre-bid meeting. The meeting is on June 13, 2016 at 10:00am. Meeting location will be in the City Council Auditorium, located at City Hall, 250 N. 5<sup>th</sup> Street, Grand Junction, CO.** The purpose of this meeting will be to inspect and to clarify the contents of this Invitation for Bids (IFB).

2. See attached site plans for the project.

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

A handwritten signature in black ink, appearing to read "Duane Hoff Jr.", is written over a white rectangular background.

Duane Hoff Jr., Senior Buyer  
City of Grand Junction, Colorado

LAMUTT, RANDY, 5/12/2016 5:25 PM

AECOM DRAWING PATH: M:\DCS\Projects\WTR\22244526\_Hallenbeck\_Mitigati\Sub\_00\7.0\_CAD\_GIS\7.04\_Plan\_Sheets\G-1-COVER SHEET.dwg

# DESIGN DRAWINGS

FOR

## HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR

PREPARED FOR

CITY OF GRAND JUNCTION, COLORADO

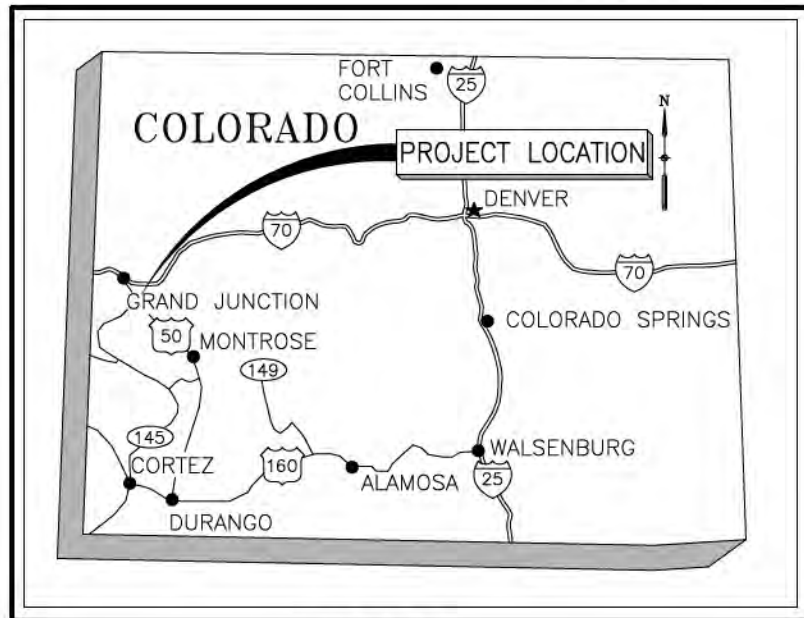
SECTION 36, TOWNSHIP 12S, RANGE 98W OF THE SIXTH P.M.  
MESA COUNTY, COLORADO  
WATER DIVISION 4, WATER DISTRICT 42, DAM ID. 420125



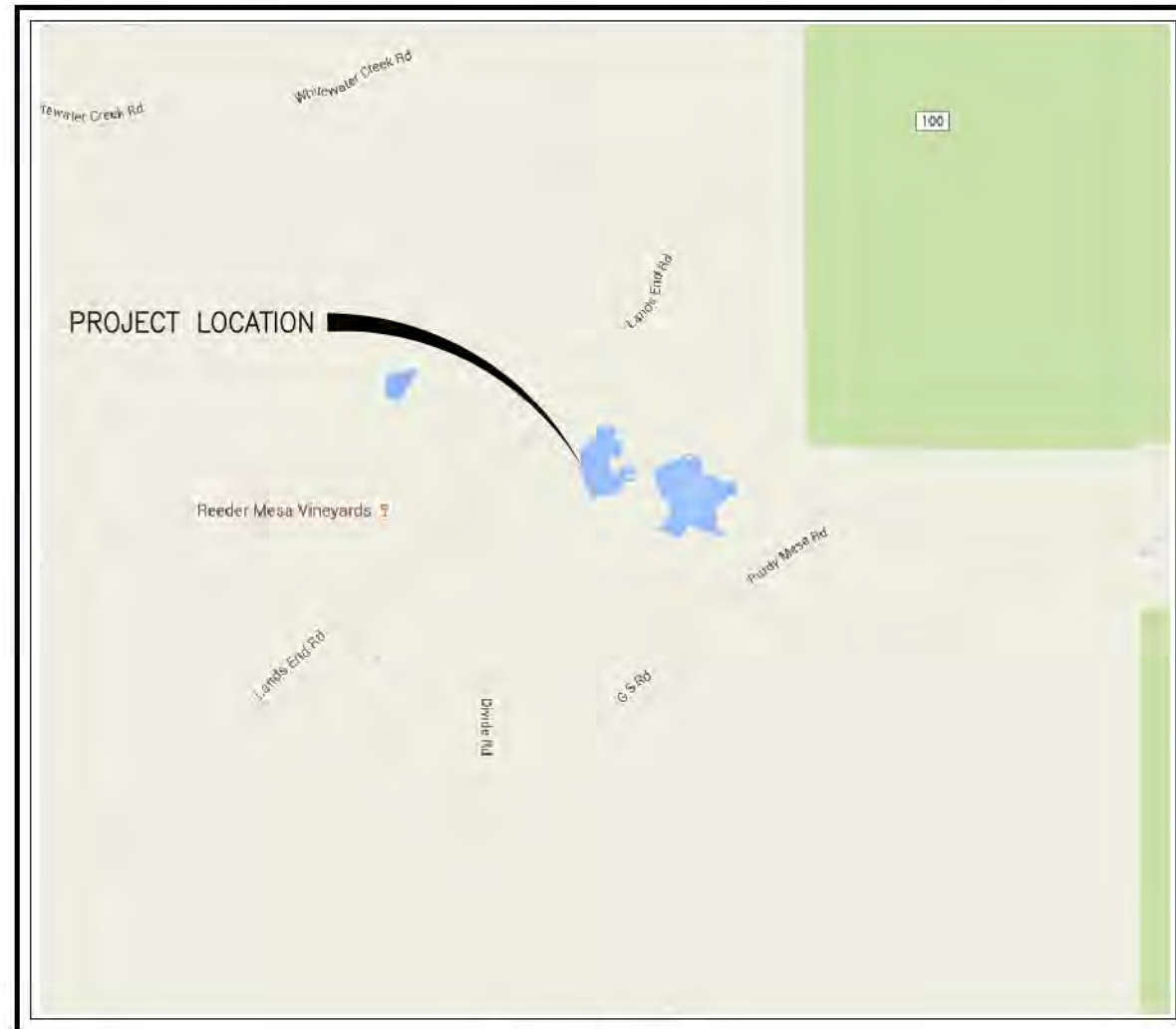
8181 East Tufts Avenue  
Denver, Co. 80237-2576  
303-694-2770 (phone)  
303-694-3946 (fax)

CITY OF GRAND  
JUNCTION,  
COLORADO

HALLENBECK NO. 1  
DOWNSTREAM SLOPE  
REPAIR



STATE MAP  
NOT TO SCALE



VICINITY MAP  
NOT TO SCALE

### COLORADO PROFESSIONAL ENGINEER CERTIFICATION

I HEREBY CERTIFY THAT THESE DRAWINGS FOR THE  
HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR WERE  
PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION)  
FOR THE OWNERS THEREOF.



*Christina Julia Winckler*  
CHRISTINA JULIA WINCKLER COLORADO PE #45480

### COLORADO STATE ENGINEER

APPROVED ON THE 16th DAY OF May, 2016.

*Dick Wolfe*  
STATE ENGINEER



BY: *William T McCormick III*  
WILLIAM T MCCORMICK III, CO PE #29127  
DAM SAFETY BRANCH

### ENGINEER OF RECORD

THESE PLANS REPRESENT THE AS-CONSTRUCTED  
CONDITIONS OF THE HALLENBECK NO.1 DOWNSTREAM  
SLOPE REPAIR TO THE BEST OF OUR KNOWLEDGE AND  
JUDGEMENT, BASED IN PART ON INFORMATION  
FURNISHED BY OTHERS AS OF THE \_\_\_ DAY OF  
\_\_\_ 20\_\_.

ENGINEER

SIGNATURE

ISSUED FOR BIDDING 5/11/2016 CJCW  
DATE BY

ISSUED FOR CONSTRUCTION \_\_\_\_\_ DATE BY

### REVISIONS

NO.	DESCRIPTION	DATE
△		
△		
△		
△		
△		

AECOM PROJECT NO: 80422760 / 22244526

DRAWN BY: BAT

DESIGNED BY: ALD

CHECKED BY: CJCW

DATE CREATED: 7/2015

PLOT DATE: 5/12/2016

SCALE: AS SHOWN

ACAD VER: 2014

SHEET TITLE

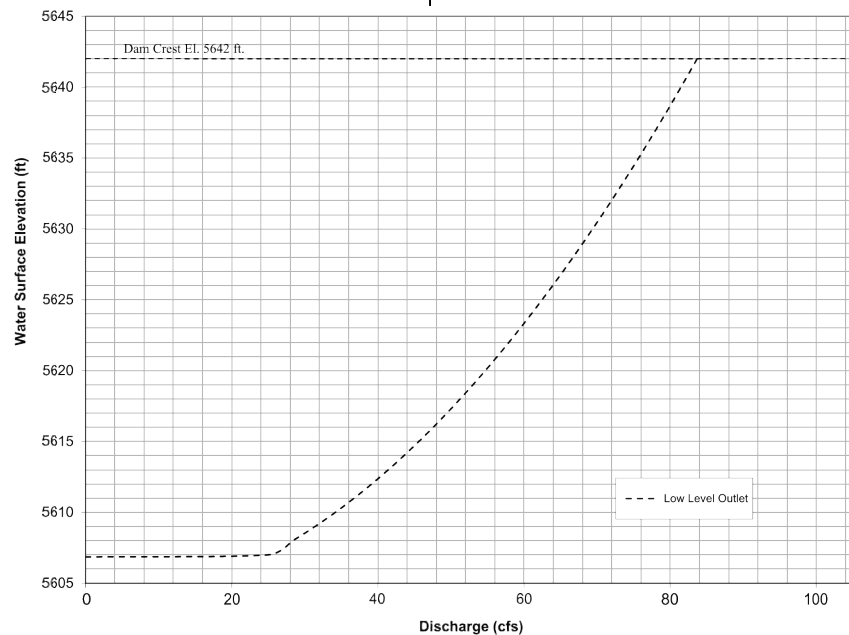
COVER SHEET

SEO FILE NO. C-0356F

G-1

SHEET 001 OF 017

LAWUTT, RANDY, 5/17/2016 1:04 PM



OUTLET RATING CURVE

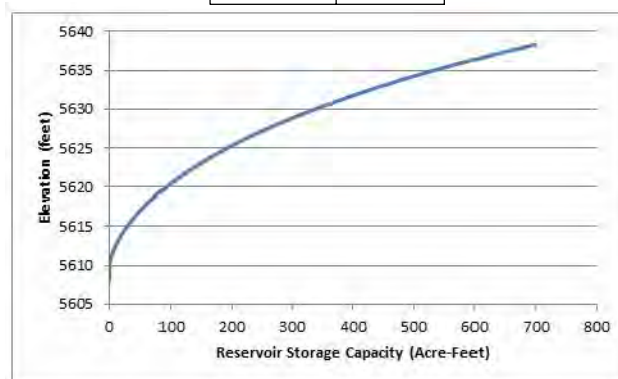
1. LOW LEVEL OUTLET WORK DISCHARGE CAPACITY:  
 $H = Y - 5606.85$   
 $Q = 166.04H$  (5632 ≤ H ≤ 5632.5)  
 $Q = -0.007H^3 - 0.0601H^2 + 2.9243H + 25.23$  (H > 5607)

WHERE, H = WATER HEAD (FT)  
 Y = RESERVOIR WATER SURFACE ELEVATION (FT)  
 Q = DISCHARGE (CFS)

WSE (ft)	Head (ft)	Low Level Outlet Discharge (cfs)
5606.85	3.3	0.0
5607	3.4	24.9
5608	4.4	28.3
5609	5.4	31.4
5610	6.4	34.2
5611	7.4	36.7
5612	8.4	39.1
5613	9.4	41.4
5614	10.4	43.6
5615	11.4	45.6
5616	12.4	47.6
5617	13.4	49.4
5618	14.4	51.3
5619	15.4	53.0
5620	16.4	54.7
5621	17.4	56.3
5622	18.4	57.9
5623	19.4	59.5
5624	20.4	61.0
5625	21.4	62.5
5626	22.4	63.9
5627	23.4	65.3
5628	24.4	66.7
5629	25.4	68.1
5630	26.4	69.4
5631	27.4	70.7
5632	28.4	72.0
5633	29.4	73.2
5634	30.4	74.5
5635	31.4	75.7
5636	32.4	76.9
5637	33.4	78.1
5638	34.4	79.2
5639	35.4	80.4
5640	36.4	81.5
5641	37.4	82.6
5642	38.4	83.7

LOW-LEVEL RATING CURVE

Elevation (feet)	Storage Capacity (ac-ft)
5608	0.0
5609	0.1
5610	0.4
5611	2.5
5612	7.3
5613	13.3
5614	20.6
5615	29.3
5616	39.3
5617	50.6
5618	63.2
5619	77.1
5620	92.9
5621	110.1
5622	128.5
5623	148.4
5624	169.9
5625	193.2
5626	218.3
5627	245.2
5628	274.2
5629	305.2
5630	338.3
5631	373.1
5632	409.9
5633	448.9
5634	490.3
5635	534.5
5636	581.7
5637	631.2
5638	683.3
5638.3	699.4

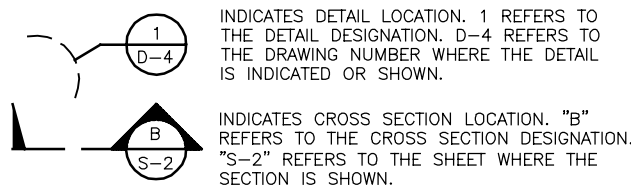


RESERVOIR STORAGE CAPACITY CURVE

ABBREVIATIONS

APPROX	APPROXIMATE
BP	BEGIN POINT
C, CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
DIA	DIAMETER
E	EAST
EL,ELEV	ELEVATION
EP	END POINT
FT	FOOT OR FEET
GALV	GALVANIZED
HDPE	HIGH DENSITY POLYETHYLENE
IN	INCH
K	LENGTH OF VERTICAL CURVE
MAX	MAXIMUM
MIN	MINIMUM
N	NORTH
NO.	NUMBER
NWL	NORMAL WATER LEVEL
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PLASTIC
PVI	POINT OF VERTICAL INTERSECTION
PZ	PIEZOMETER
R	RADIUS
SSD	STOPPING SIGHT DISTANCE
STA	STATION
TH	TEST HOLE
TYP	TYPICAL
VC	VERTICAL CURVE
VERT	VERTICAL

	NEW CONCRETE
	EXISTING CONCRETE
	CONCRETE TO BE REMOVED
	FILTER SAND
	COMMON FILL
	DRAIN STONE
	RIPRAP BEDDING
	ROCK



Sheet List Table		
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007	C-5	MODIFICATION SECTIONS
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009	C-7	TOE DRAIN SECTIONS AND DETAILS
010	C-8	TOE DRAIN SECTIONS AND DETAILS
011	C-9	SERVICE ROAD PLAN AND PROFILE
012	C-10	INSTRUMENTATION PLAN AND SECTIONS
013	C-11	INSTRUMENTATION DETAILS
014	C-12	BORROW AREA PLAN
015	S-1	STRUCTURAL NOTES, ABBREVIATIONS AND DETAILS
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017	S-3	RETAINING WALL SECTIONS

GENERAL NOTES

- BASE TOPOGRAPHY WAS PROVIDED BY OWNER JULY, 2015. BORROW AREA TOPOGRAPHY WAS PROVIDED BY OWNER OCTOBER, 2015.
- PROJECT COORDINATES SYSTEM IS:  
 JUNIATA DATUM  
 TRANSVERSE MERCATOR PROJECTION  
 FALSE NORTHING 50,000.00  
 FALSE EASTING 100,000.00  
 ORIGIN LATITUDE: N38DEG57MIN23.8387SEC  
 ORIGIN LONGITUDE: W108DEG17MIN09.74043SEC  
 SCALE FACTOR: 1.0002869990  
 SEMI-MAJOR AXIS: 20925604.474  
 FLATTENING: 298.2572229330  
 GRID COORDINATES  
 PROJECT HEIGHT: 6000.000  
 DATUM TRANSFORMATION: THREE PARAMETER  
 TRANSLATION XYZ: 0.000;0.000;0.000
- NO CHANGES TO THE DRAWINGS OR SPECIFICATIONS CAN BE MADE WITHOUT PRIOR APPROVAL FROM THE COLORADO SEO.
- OWNER PROVIDED THE DATA FOR THE RESERVOIR STORAGE CURVE.

LEGEND

PZ-2		EXISTING PIEZOMETER		PROPERTY BOUNDARY
RB1		EXISTING SURFACE MOVEMENT POINT		APPROXIMATE LOCATION
B301		BORING BY URS, 2014		SIGN
TH-4		TEST PIT BY URS, 2015		FILL SLOPE
SSP-1		NEW STRUCTURAL SURVEY POINT		CUT SLOPE
CP-1		CONTROL POINT		WATER SURFACE
		NEW STATION MARKER		MANHOLE
MM-1		NEW MOVEMENT MONUMENT		ELECTRIC LINE
PZ-1		NEW PIEZOMETER		WATER LINE
	10200	EXISTING ELEVATION CONTOUR WITH ELEVATION IN FEET		
		CENTERLINE		
		APPROXIMATE CREEK CENTERLINE		
		EDGE OF ROAD		
		LIMITS OF DISTURBANCE		



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CITY OF GRAND  
 JUNCTION,  
 COLORADO

HALLENBECK NO. 1  
 DOWNSTREAM SLOPE  
 REPAIR



Christine Julia Unicker  
 5/11/2016

ISSUED FOR BIDDING 5/11/2016 CJCW

ISSUED FOR CONSTRUCTION DATE BY

REVISIONS

NO.	DESCRIPTION	DATE

AECOM PROJECT NO: 60422760 / 22244526

DRAWN BY: BAT

DESIGNED BY: ALD

CHECKED BY: CJCW

DATE CREATED: 7/2015

PLOT DATE: 5/17/2016

SCALE: AS SHOWN

ACAD VER: 2014

SHEET TITLE

GENERAL NOTES,  
 LEGEND, AND  
 ABBREVIATIONS

G-2

SHEET 002 OF 017

SEO FILE NO. C-0356F

AECOM DRAWING PATH: M:\DCS\Projects\WFR\22244526\_Hallenbeck\_Mitigt\Sub\_00\7\_0\_CAD\_GIS\7\_04\_Plan\_Sheets\G-2-NOTES-LEGEND-ABBREV.dwg

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 LAMUTT, RANDY, 5/17/2016 1:05 PM

**CITY OF GRAND JUNCTION, COLORADO**

**HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR**



Christine Julia Henkel  
 5/11/2016

ISSUED FOR BIDDING 5/11/2016 CJCW  
DATE BY

ISSUED FOR CONSTRUCTION \_\_\_\_\_  
DATE BY

REVISIONS

NO.	DESCRIPTION	DATE
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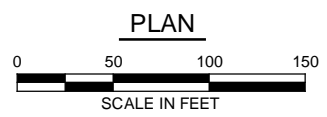
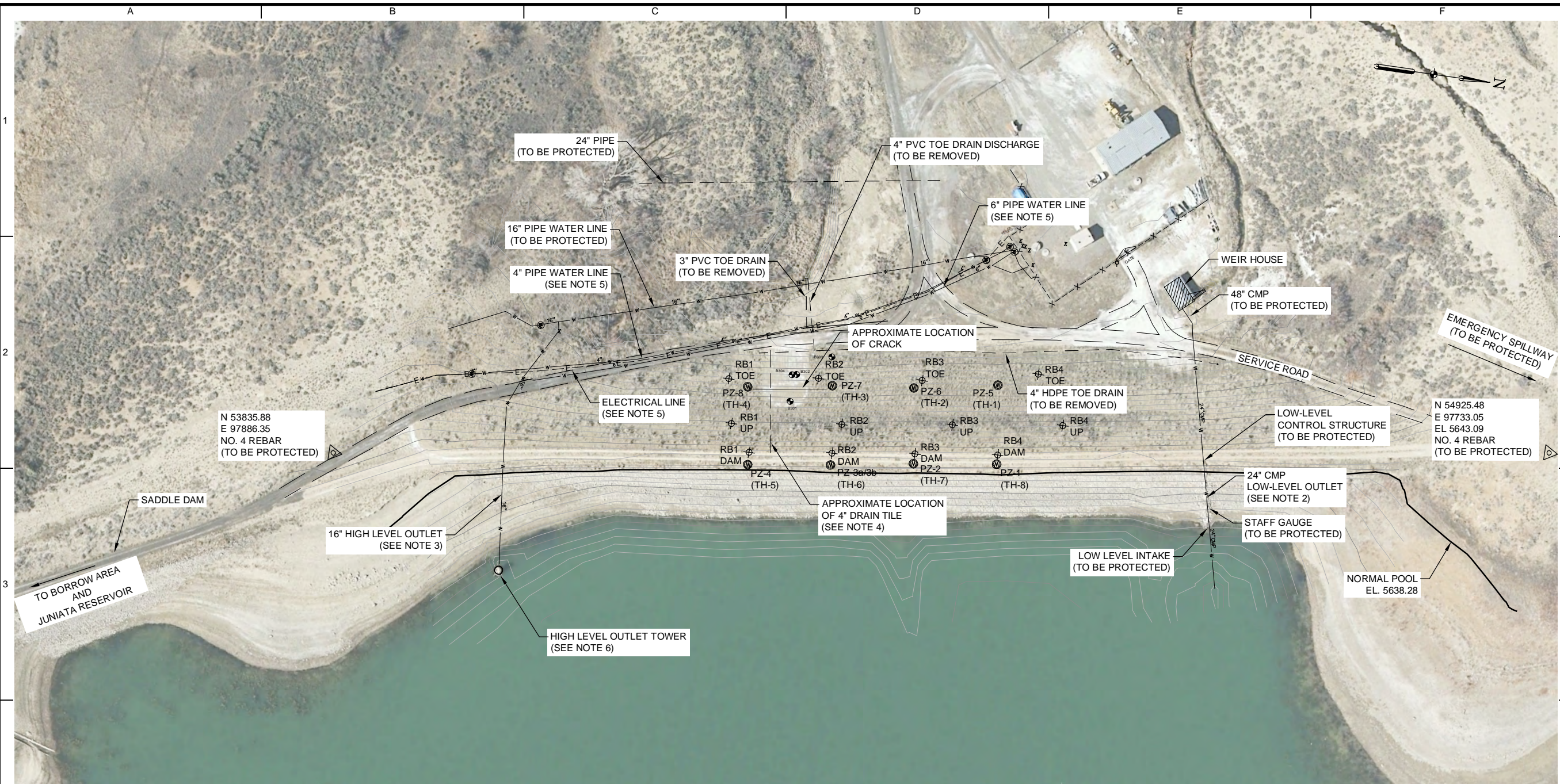
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DRAWN BY:	BAT
DESIGNED BY:	ALD
CHECKED BY:	CJCW
DATE CREATED:	7/2015
PLOT DATE:	5/17/2016
SCALE:	AS SHOWN
ACAD VER:	2014

SHEET TITLE

**EXISTING CONDITIONS, AND HORIZONTAL CONTROL**

**C-1**

SHEET 003 OF 017



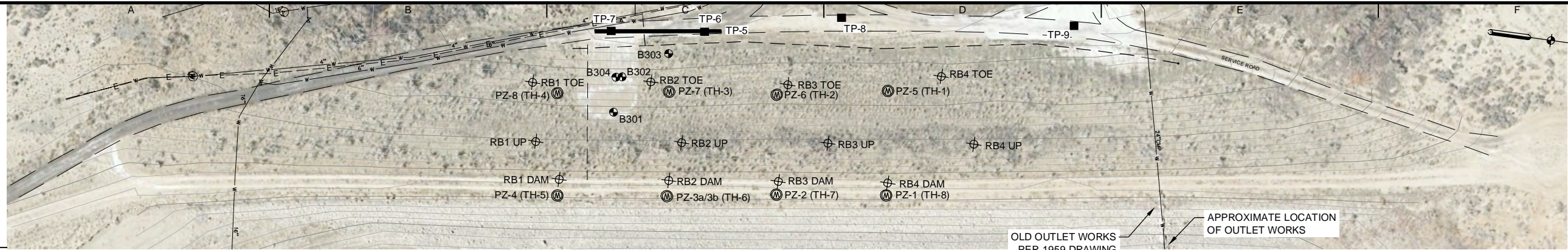
- NOTES:**
- EXISTING PIEZOMETERS TO BE ABANDONED AND EXISTING MOVEMENT POINTS, AND EXISTING TOE DRAINS TO BE REMOVED.
  - CIPP LINER WAS INSTALLED IN 24-INCH LOW LEVEL OUTLET IN 2005 TO CREATE A 21-INCH PIPE. THIS PIPE TO BE PROTECTED.
  - THE 16-INCH HIGH-LEVEL OUTLET IS AN 8-GAGE STEEL PIPE WITH CEMENT MORTAR LINING. THIS PIPE TO BE ABANDONED BY OWNER PRIOR TO THE PROJECT.
  - THE LOCATION OF THE 4-INCH DRAIN TILE IS UNCERTAIN AND THE PIPE MIGHT NOT EXIST.
  - THE EXISTING 6-INCH PIPELINE, 4-INCH PIPELINE AND ELECTRICAL LINE TO BE RELOCATED BY OWNER PRIOR TO THIS PROJECT.
  - THE HIGH LEVEL OUTLET TO BE ABANDONED BY OWNER PRIOR TO THIS PROJECT.

- LEGEND**
- 1998 PIEZOMETER
  - EXISTING SURFACE MOVEMENT POINT
  - BENCHMARK

SEO FILE NO. C-0356F

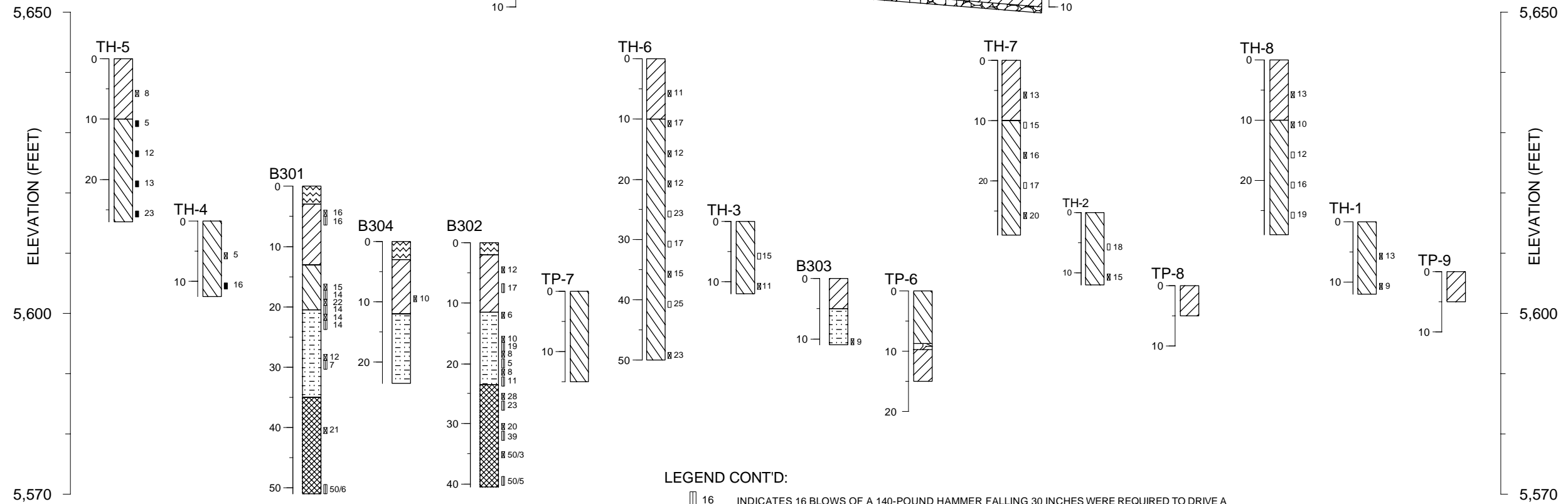
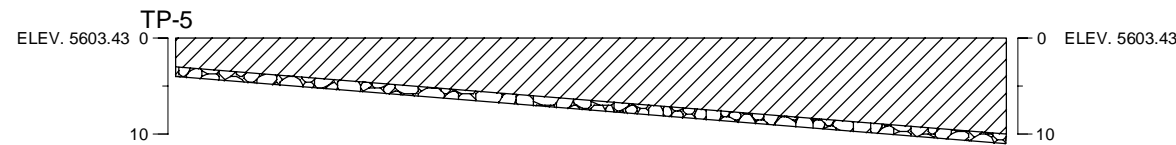
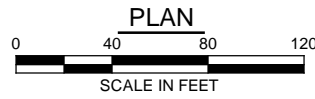
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**NOTES:**

1. TEST HOLES TH-1 THROUGH TH-8 WERE DRILLED WITH AN ANCKER MP4 DRILL RIG EQUIPPED WITH 4-1/4 INCH INSIDE DIAMETER HOLLOW STEM AUGER.
2. TEST HOLES B301 THROUGH B304 WERE DRILLED WITH A TRACK MOUNTED CME 45 DRILL RIG EQUIPPED WITH 3-1/4 INCH INSIDE DIAMETER HOLLOW STEM AUGER.
3. FIVE TEST PITS WERE EXCAVATED BY THE OWNER IN APRIL 2015. THE RESULTS FROM THESE ARE FURTHER DESCRIBED IN THE DESIGN REPORT.



**LEGEND:**

- DRILL PAD
- NEW EMBANKMENT FILL (CL, LEAN CLAY WITH SAND AND GRAVEL)
- OLD EMBANKMENT FILL (CL, LEAN CLAY WITH SAND AND GRAVEL)
- ALLUVIUM (CL WITH GRAVEL AND COBBLE)
- MANCOS SHALE (COMPLETELY WEATHERED TO HIGHLY WEATHERED)
- COBBLES

**LEGEND CONT'D:**

- 16 INDICATES 16 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2-INCH DIAMETER STANDARD SPLIT SPOON SAMPLER 12 INCHES UNLESS OTHERWISE NOTED (UNCORRECTED SPT BLOW COUNT, N). A SAMPLER DRIVE LESS THEN 12 INCHES IS INDICATED BY THE BLOWS REQUIRED TO DRIVE THE SAMPLER A CERTAIN DISTANCE IN INCHES (50/3 INDICATES 50 BLOWS TO ADVANCE 3 INCHES).
- 16 INDICATES 16 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A MODIFIED CALIFORNIA SAMPLER 12 INCHES UNLESS OTHERWISE NOTED. A SAMPLER DRIVE LESS THEN 12 INCHES IS INDICATED BY THE BLOWS REQUIRED TO DRIVE THE SAMPLER A CERTAIN DISTANCE IN INCHES (50/3 INDICATES 50 BLOWS TO ADVANCE 3 INCHES).
- 16 INDICATES 16 BLOWS OF A 140-POUND HAMMER FALLING 30-INCHES WERE REQUIRED TO DRIVE A DAMES AND MOORE SAMPLER 12 INCHES UNLESS OTHERWISE NOTED.



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**CITY OF GRAND JUNCTION, COLORADO**

**HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR**



*Christine Julia Lincoln*  
5/11/2016

ISSUED FOR BIDDING 5/11/2016 CJW  
DATE BY

ISSUED FOR CONSTRUCTION \_\_\_\_\_  
DATE BY

**REVISIONS**

NO.	DESCRIPTION	DATE
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AECOM PROJECT NO: 60422760 / 22244526  
DRAWN BY: BAT  
DESIGNED BY: ALD  
CHECKED BY: CJW  
DATE CREATED: 7/2015  
PLOT DATE: 5/17/2016  
SCALE: AS SHOWN  
ACAD VER: 2014

**SHEET TITLE**

**GEOTECHNICAL INVESTIGATION PLAN AND GEOTECHNICAL BORING LOGS**

SEO FILE NO. C-0356F

**C-2**

SHEET 004 OF 017

LAWITT, RANDY, 5/17/2016 1:06 PM

AECOM DRAWING PATH: M:\DCS\Projects\WTR\22244526\_Hallenbeck\_Mitigat\Sub\_00\7\_0\_CAD\_GIS\7\_04\_Plan\_Sheets\C-3-GENERAL PLAN.dwg



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*Christine Julia Lincoln*  
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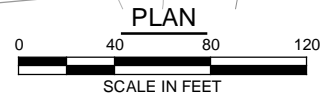
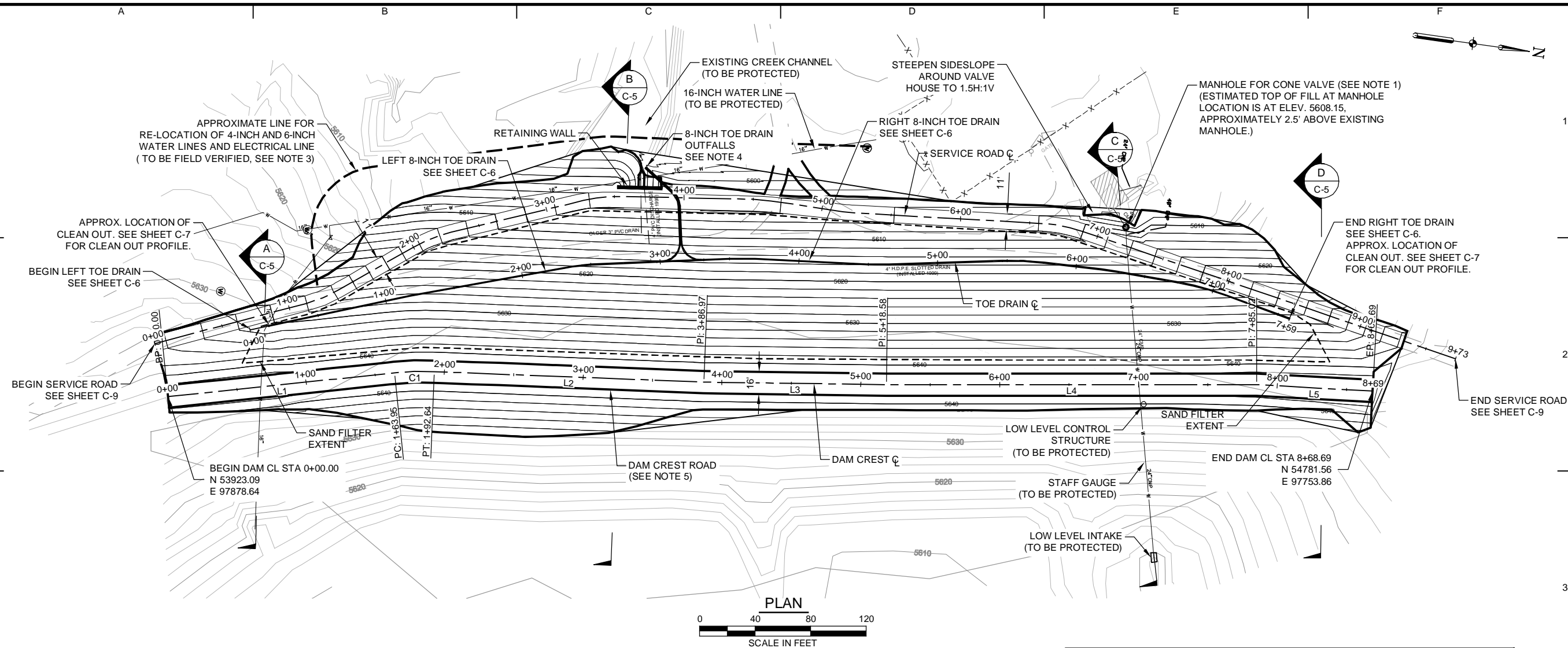
AECOM PROJECT NO: 60422760 / 22244526  
DRAWN BY: BAT  
DESIGNED BY: ALD  
CHECKED BY: CJCW  
DATE CREATED: 7/2015  
PLOT DATE: 5/17/2016  
SCALE: AS SHOWN  
ACAD VER: 2014

SHEET TITLE

**GENERAL PLAN OF MODIFICATIONS**

**C-3**

SHEET 005 OF 017



**NOTES:**

- MANHOLE TO BE RAISED PRIOR TO FILL PLACEMENT. OWNER TO PROVIDE DETAIL OF TYPE OF MANHOLE.
- SERVICE ROAD ON LEFT AND RIGHT GROINS TO BE RE-SURFACED BY OWNER AFTER PROJECT COMPLETION. THE SERVICE ROAD TO BE TIED INTO THE EXISTING SERVICE ROADS AS APPLICABLE.
- 4-INCH AND 6-INCH WATER LINES AND ELECTRICAL LINE TO BE MOVED BY OWNER. THE 4-INCH RELIEF VALVE FROM 6-INCH LINE WILL NEED TO BE INSTALLED THROUGH THE NEW RETAINING WALL, SEE SHEETS S-3.
- PLACE RIPRAP AROUND TOE DRAIN OUTFALL TO PROTECT EXISTING CHANNEL. ASSUME AN AREA OF 10 BY 5 AND 1 FEET DEEP.
- ROAD BASE TO BE PLACED ON DAM CREST ROAD BY CONTRACTOR.

MODIFIED DAM CREST HORIZONTAL CONTROL POINTS					
NUMBER	LENGTH (FT)	RADIUS (FT)	LINE/CHORD DIRECTION	DELTA	TANGENT (FT)
L1	163.95		N13° 59' 05.46"W		
C1	28.69	200.00	N09° 52' 29.73"W	008°13'11"	14.37
L2	194.33		N05° 45' 54.01"W		
L3	131.61		N07° 15' 06.36"W		
L4	266.43		N07° 59' 52.15"W		
L5	83.68		N04° 49' 42.12"W		

SEO FILE NO. C-0356F

LAWUITT, RANDY, 5/17/2016 1:06 PM

AECOM DRAWING PATH: M:\DCS\Projects\WTR\22244526\_Hallenbeck\_Mitigat\Sub\_00\7\_0\_CAD\_GIS\7\_04\_Plan\_Sheets\C-4-EXAVATION\_PLAN.dwg

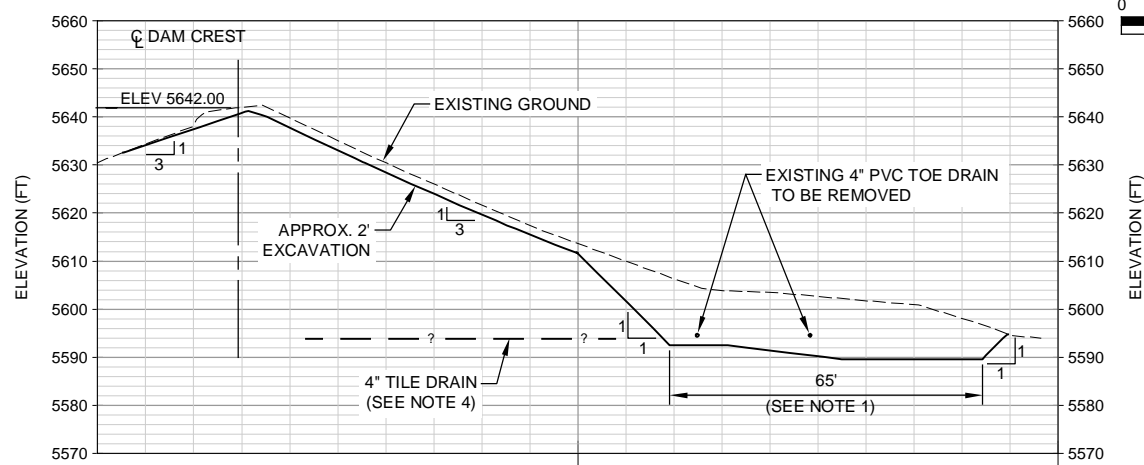
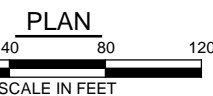
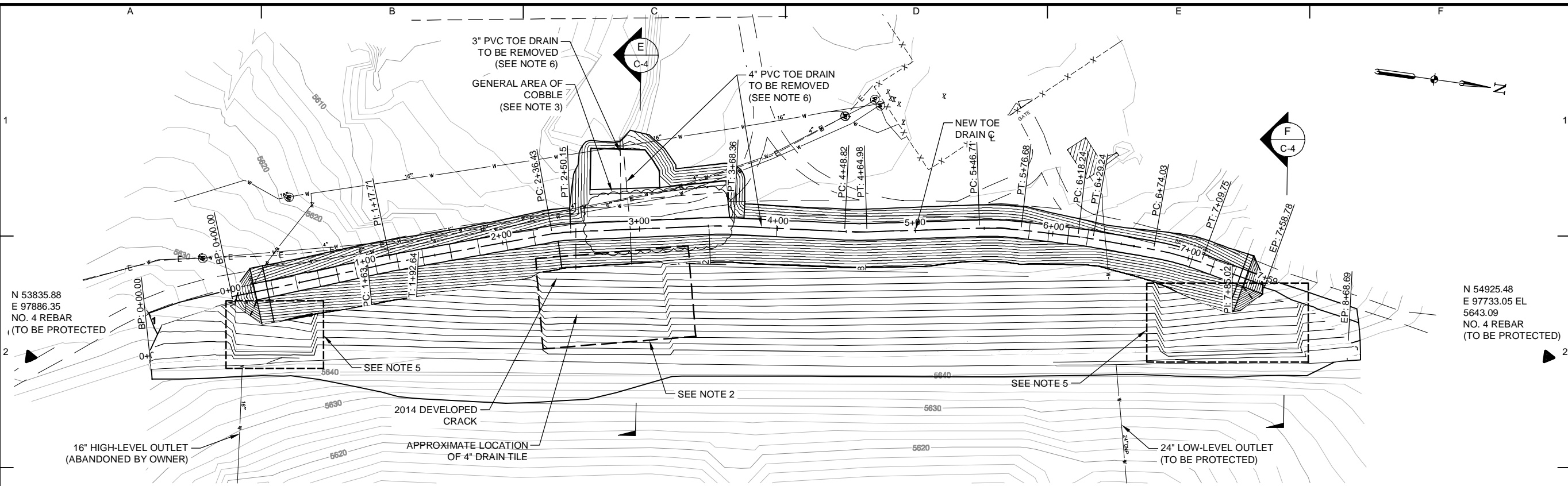


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### CITY OF GRAND JUNCTION, COLORADO

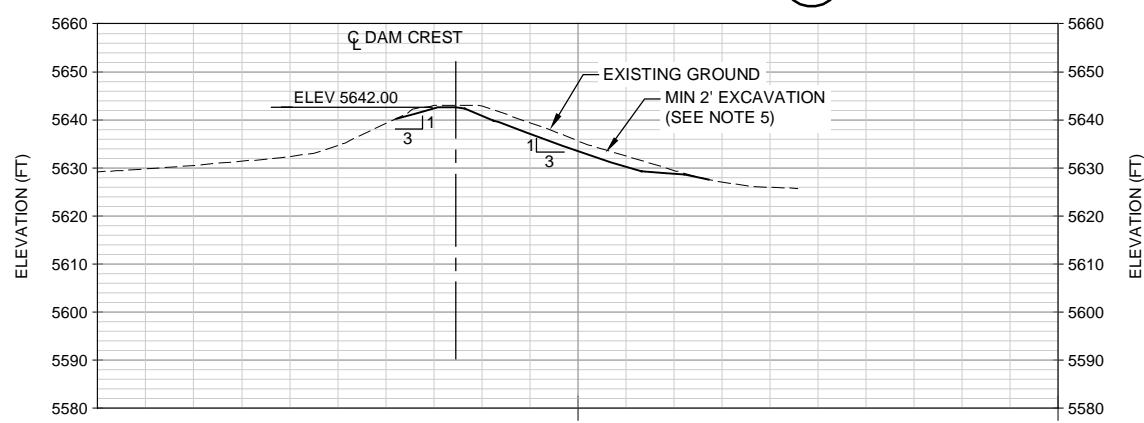
### HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR

N 54925.48  
E 97733.05 EL  
5643.09  
NO. 4 REBAR  
(TO BE PROTECTED)

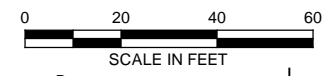


EXCAVATION SECTION E C-4

NOTE:  
1. COBBLES FOUND IN TRENCH EXCAVATION TO BE REMOVED.



EXCAVATION SECTION F C-4



#### NOTES:

- EXISTING STAFF GAGE TO BE PROTECTED. NO EXCAVATION SHOULD BE PERFORMED WITHIN 5 FEET ON EITHER SIDE OF THE STAFF GAGE.
- EXCAVATION OF DAM SLOPE SHALL BE 2' BETWEEN DAM STA. 2+89 AND STA. 3+79 AND 6" ELSEWHERE. THIS AREA CORRESPONDS TO AREA OF THE DEVELOPED DOWNSTREAM CRACK.
- COBBLES FOUND IN TEST PIT TRENCH (TP-5, SHEET C-2) EXCAVATED BY OWNER IN 2015 TO BE REMOVED. ENGINEER WILL VERIFY NEW TOE DRAIN TRENCH EXCAVATION PRIOR TO BACKFILLING.
- ALLOW FOR OVER EXCAVATION TO LOCATE THE POTENTIAL EXISTING 4" DRAIN TILE AS DIRECTED BY ENGINEER IN THE FIELD.
- OVER EXCAVATE IN AREAS TO ACCOMMODATE SAND LAYER AND EMBANKMENT FILL AS SHOWN ON SHEET C-5.
- REMOVE ALL COMPONENTS OF THE EXISTING DRAIN SYSTEM INCLUDING GRAVEL AND PIPE WITHIN THE LIMITS OF EXCAVATION.



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5/11/2016

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 PLOT DATE: 5/17/2016  
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SHEET TITLE

### EXCAVATION PLAN AND SECTIONS

SEO FILE NO. C-0356F

**C-4**

SHEET 006 OF 017

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**HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR**



Christine Julia Lincoln  
 5/11/2016

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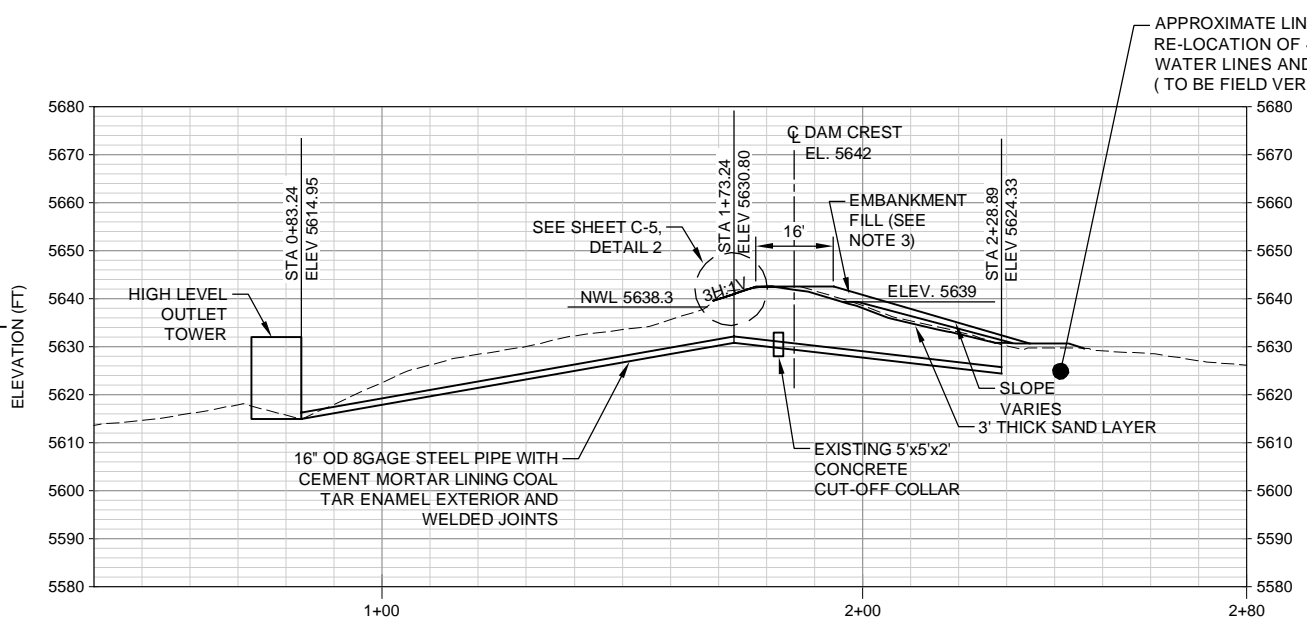
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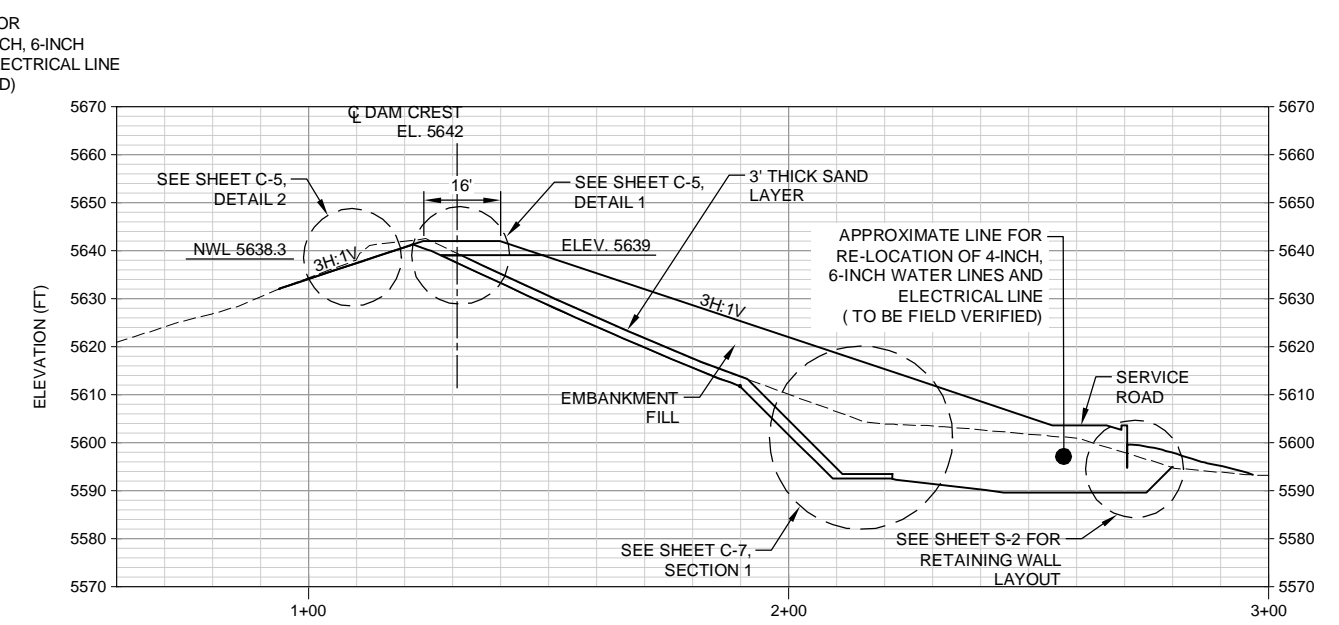
**MODIFICATION SECTIONS**

**C-5**

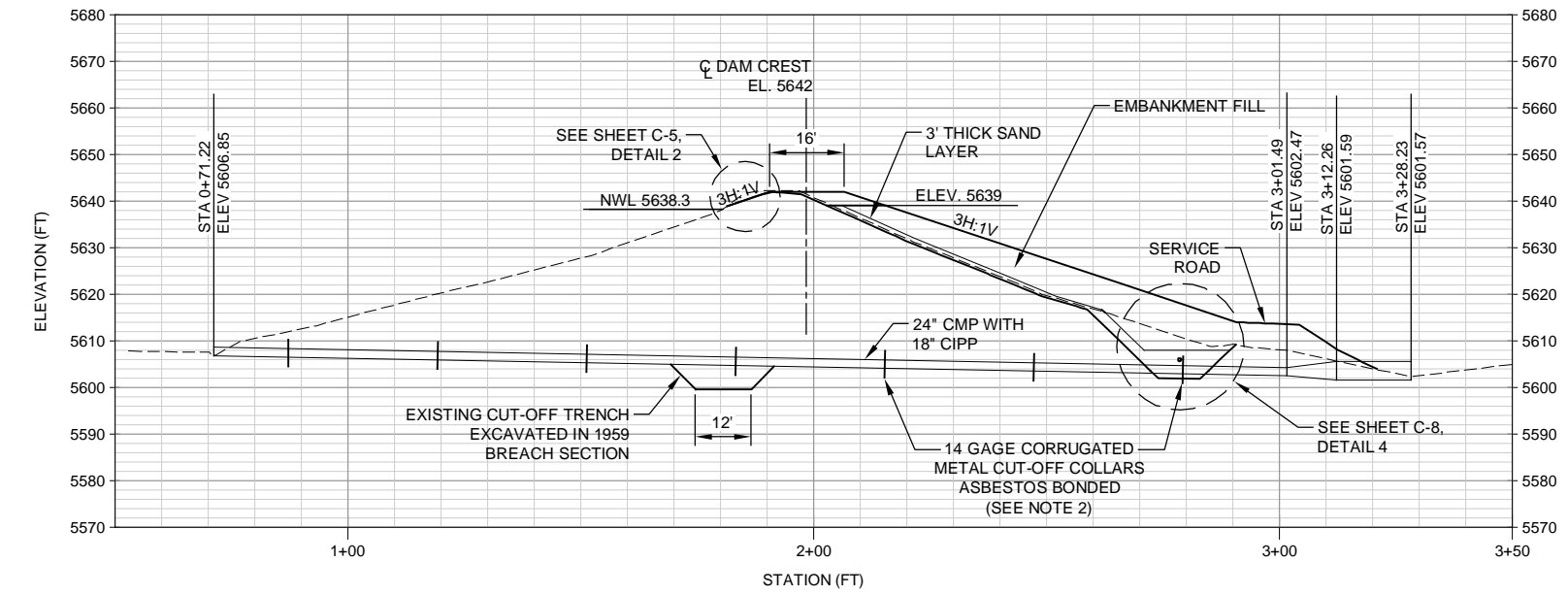
SHEET 007 OF 017



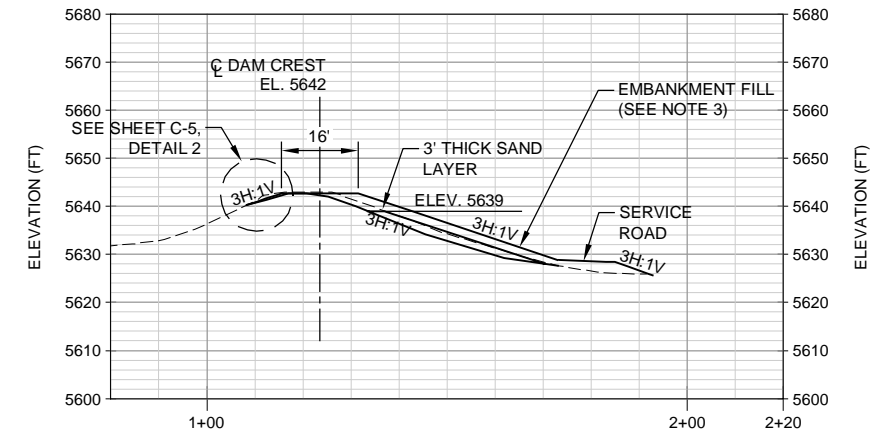
**HIGH-LEVEL MODIFICATION SECTION A**  
SCALE: 1" = 20'



**GENERAL MODIFICATION SECTION B**  
SCALE: 1" = 20'

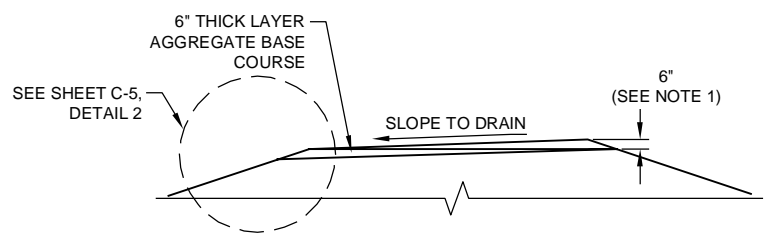


**LOW-LEVEL MODIFICATION SECTION C**  
SCALE: 1" = 20'

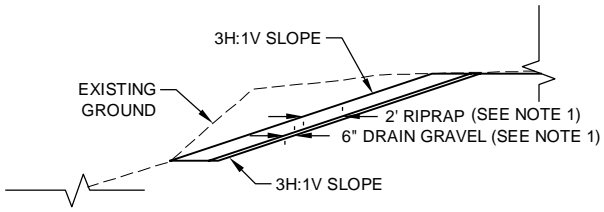


**GENERAL MODIFICATION SECTION D**  
SCALE: 1" = 20'

- NOTES:
- CAMBER ON DOWNSTREAM CREST EDGE VARIES LINEARLY FROM 6 INCHES AT STA 3+25 TO ZERO AT EACH ABUTMENT.
  - CONTRACTOR TO CAREFULLY EXCAVATE AROUND THE METAL CUT-OFF COLLARS, IF ENCOUNTERED DEMOLISH AND REMOVE COLLARS.
  - ALLOW MINIMUM OF 2' VERTICAL OF EMBANKMENT FILL OVER PLACED SAND LAYER. OVER-EXCAVATE IN AREAS TO ALLOW 1' THICK EMBANKMENT FILL OUTSIDE SAND FILTER LIMITS.



**DAM CREST DETAIL 1**  
NOT TO SCALE



**UPSTREAM SLOPE DETAIL 2**  
NOT TO SCALE

NOTE:  
1. PLACE RIPRAP AND DRAIN GRAVEL ON REGRADED PORTION OF THE UPSTREAM SLOPE.

SEO FILE NO. C-0356F



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AECOM DRAWING PATH: M:\DCS\Projects\WTR\2224452E\_Hallenbeck\_Mitigat\Sub\_00\7.0\_CAD\_GIS\7.04\_Plan\_Sheets\C-6-TOE DRAIN.dwg



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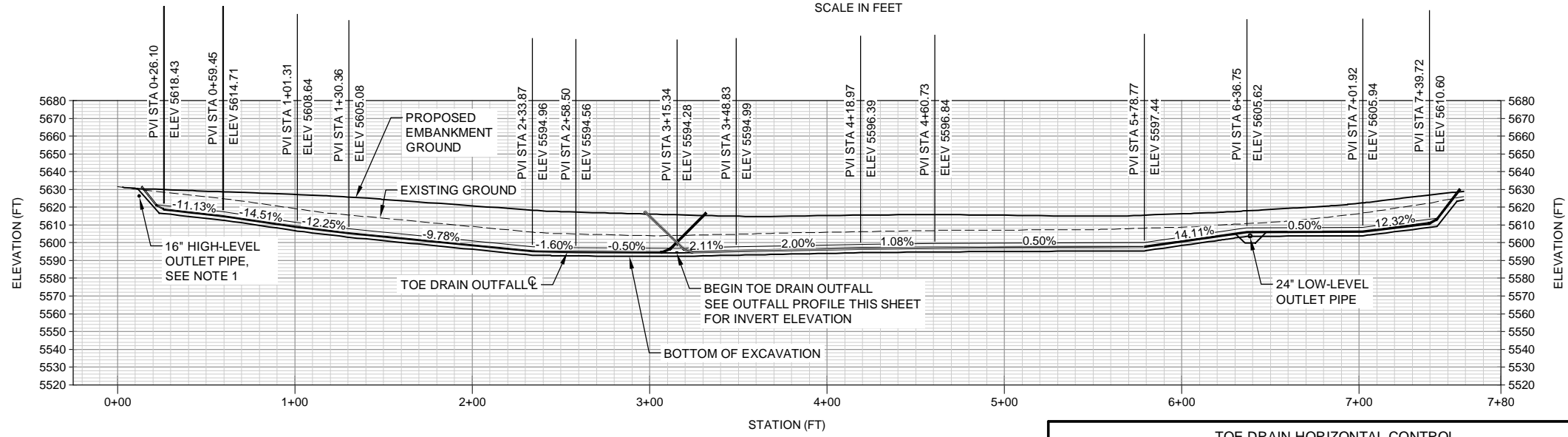
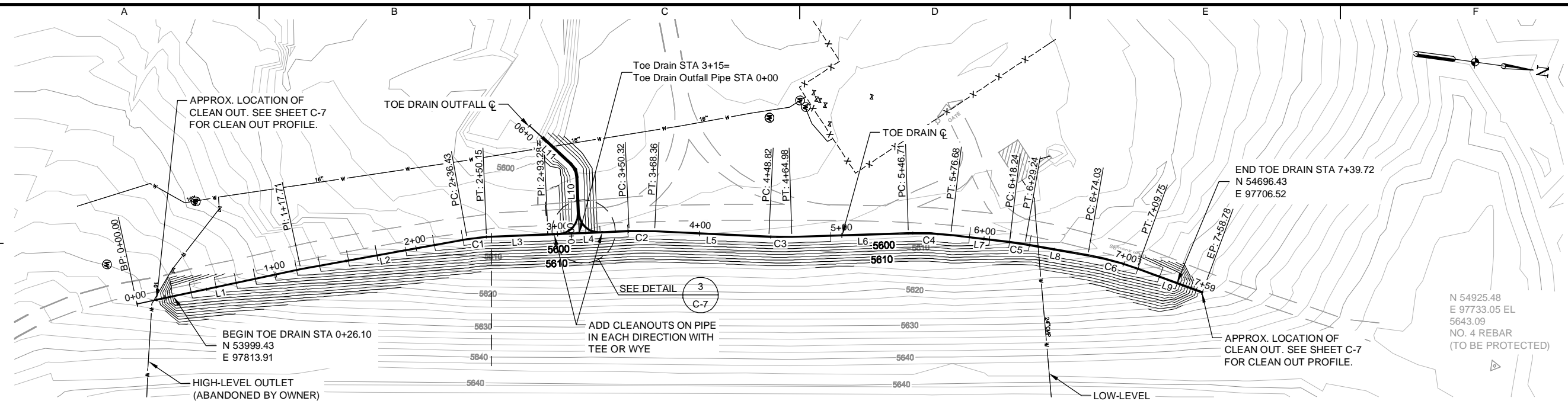
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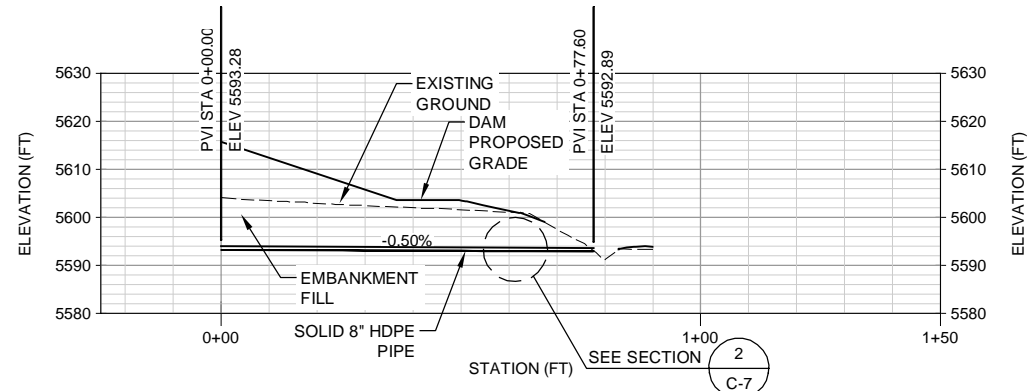
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**TOE DRAIN PLAN AND PROFILE**



**TOE DRAIN PROFILE**



**OUTFALL PROFILE**

TOE DRAIN HORIZONTAL CONTROL					
NUMBER	LENGTH (FT)	RADIUS (FT)	LINE/CHORD DIRECTION	DELTA	TANGENT (FT)
L10	45.09		S79° 37' 30.92"W		
L11	44.83		S34° 37' 30.92"W		
L1	117.71		N20° 02' 43.51"W		
L2	118.72		N18° 14' 08.11"W		
C1	13.72	100.00	N14° 18' 18.59"W	007°51'39"	6.87
L3	43.13		N10° 22' 29.08"W		
L4	57.04		N10° 22' 29.08"W		
C2	18.04	200.00	N07° 47' 24.18"W	005°10'10"	9.03
L5	80.45		N05° 12' 19.28"W		
C3	16.16	200.00	N07° 31' 13.73"W	004°37'49"	8.09
L6	81.73		N09° 50' 08.18"W		
C4	29.97	200.00	N05° 32' 33.66"W	008°35'09"	15.01
L7	41.56		N01° 14' 59.14"W		
C5	11.00	200.00	N00° 19' 33.71"E	003°09'06"	5.50
L8	44.79		N01° 54' 06.55"E		
C6	35.72	200.00	N07° 01' 06.82"E	010°14'01"	17.91
L9	49.03		N12° 08' 07.09"E		

**NOTE:**

- 16" HIGH-LEVEL OUTLET PIPE TO BE CUT IN VICINITY OF TOE DRAIN AND FILTER SAND PLACED IN EXCAVATED TRENCH BY OWNER PRIOR TO THE WORK. IF FILTER SAND IS ENCOUNTERED DURING TOE DRAIN EXCAVATION REPLACE WITH FILTER SAND UPON BACKFILLING.

SEO FILE NO. C-0356F

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### CITY OF GRAND JUNCTION, COLORADO

### HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR



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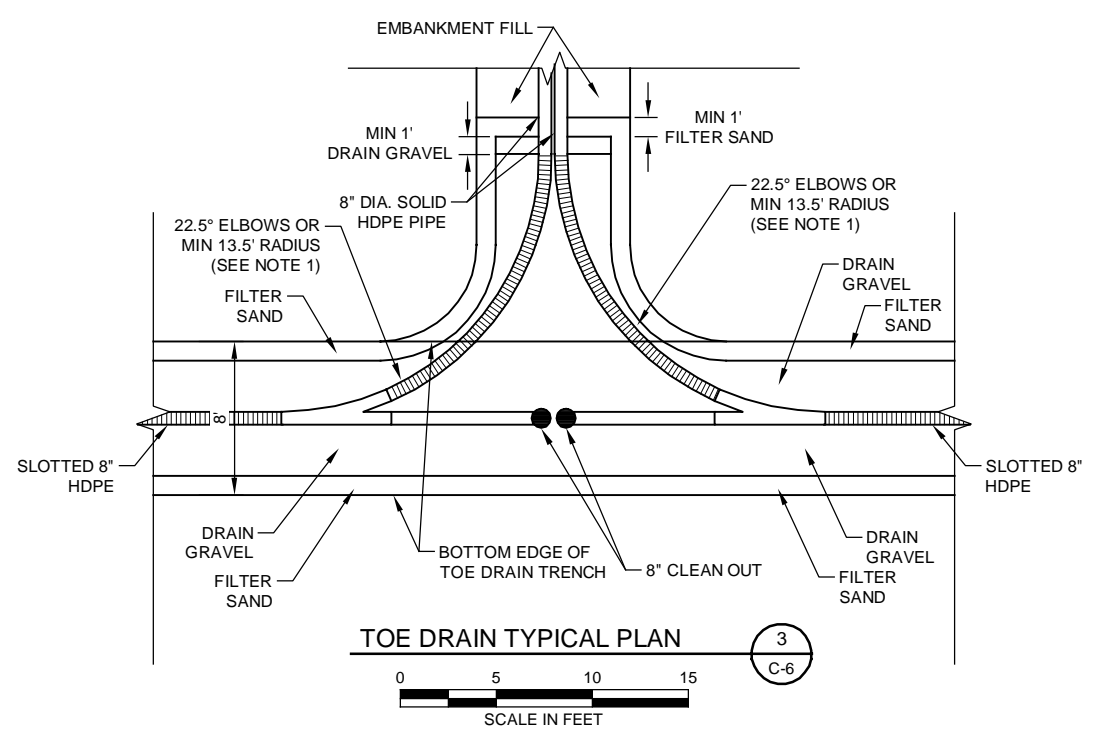
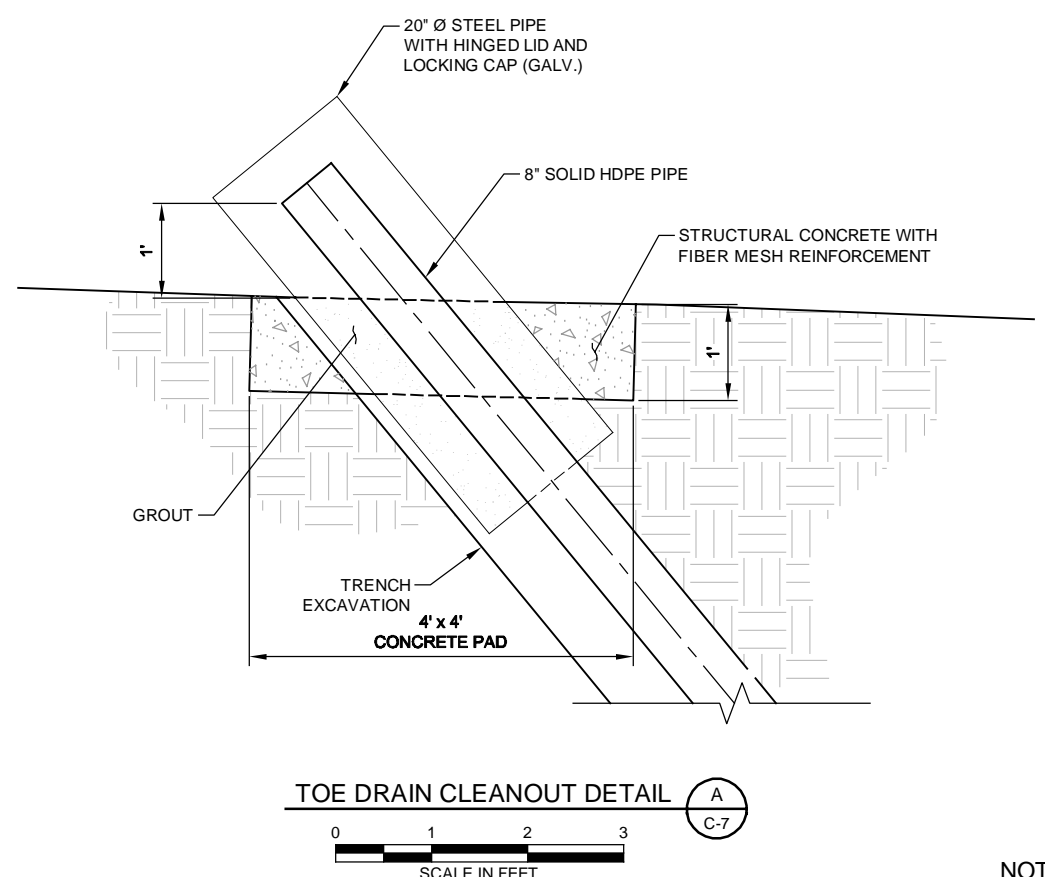
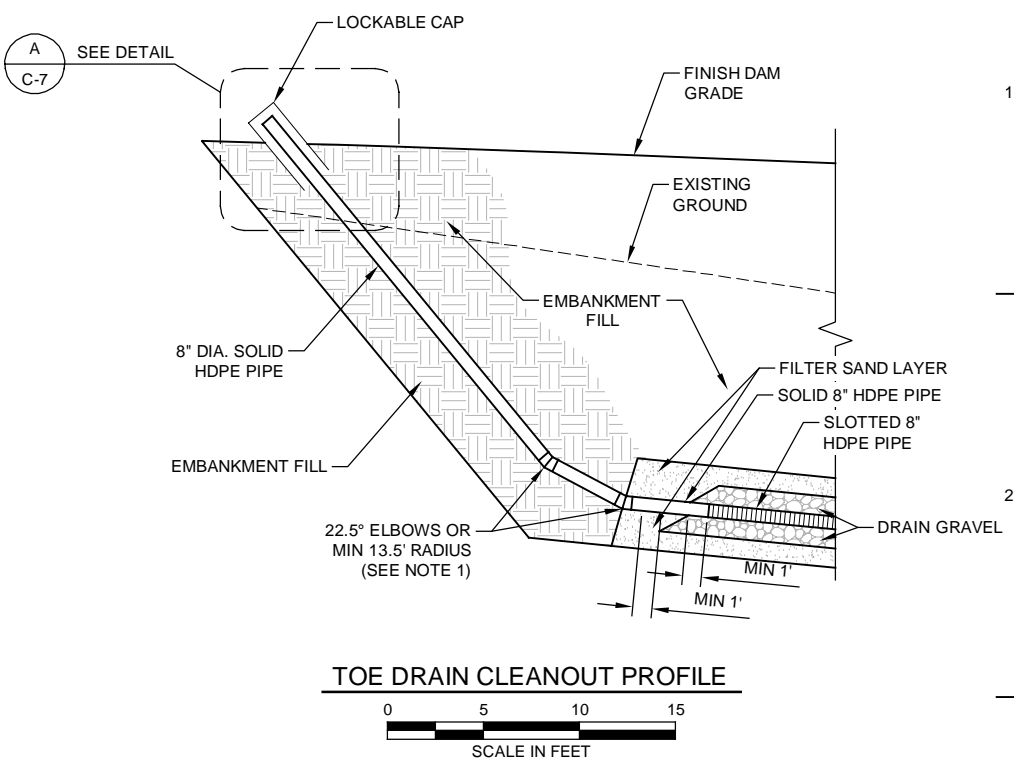
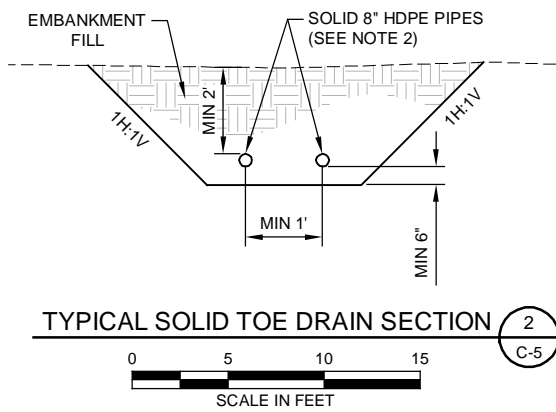
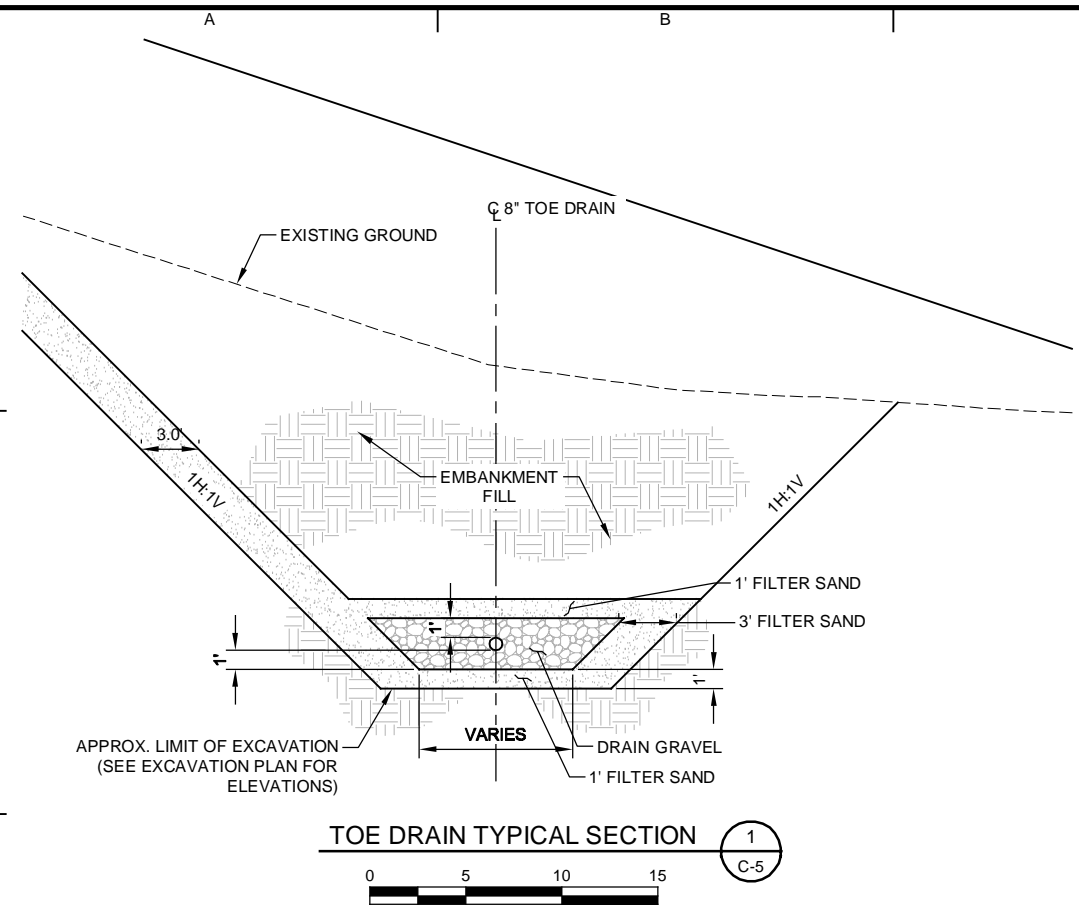
SHEET TITLE

### TOE DRAIN SECTIONS AND DETAILS

# C-7

SHEET 009 OF 017

SEO FILE NO. C-0356F



#### NOTES:

- 45° BENDS ARE SHOWN FOR LAYOUT ONLY. CONSTRUCT 45° BENDS USING ELBOWS WITH A MINIMUM ANGLE OF 22.5°. A MINIMUM OF 4 FEET OF STRAIGHT PIPE SHALL BE USED BETWEEN ELBOWS.
- TOE DRAIN TO DAYLIGHT IN CREEK WITH RIPRAP DOWNSTREAM, AS DIRECTED BY ENGINEER IN FIELD.

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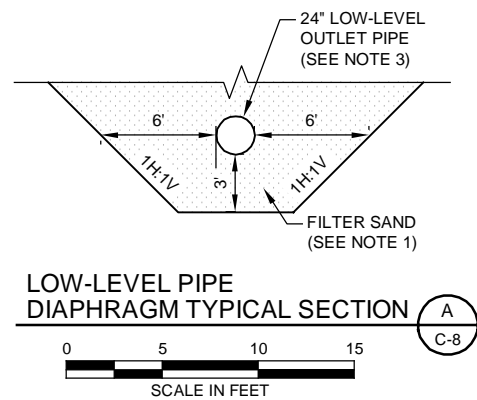
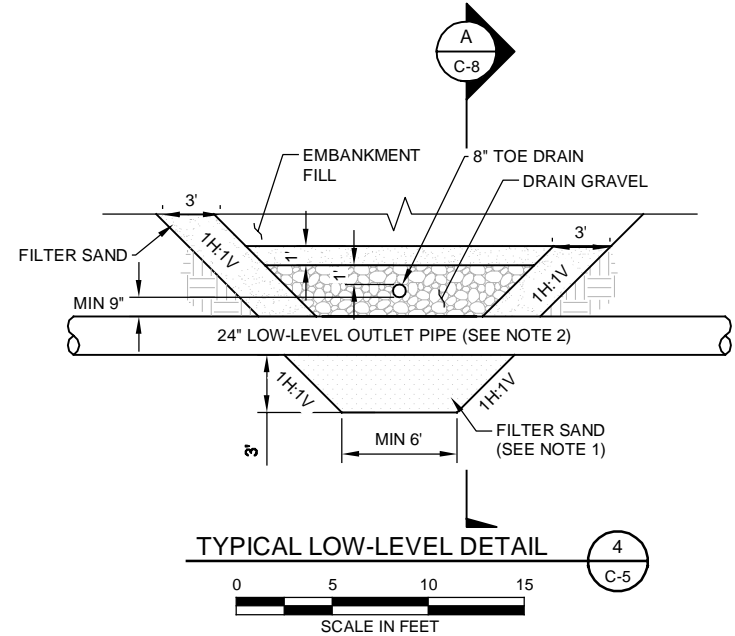
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**TOE DRAIN SECTION AND DETAIL**

**C-8**

SHEET 010 OF 017



**NOTES:**

1. FILTER SAND TO BE SLUCED UNDER EXISTING LOW - LEVEL PIPE.
2. CARE SHOULD BE TAKEN TO NOT DAMAGE THE LOW - LEVEL PIPE DURING EXCAVATION AND BACKFILLING.

SEO FILE NO. C-0356F

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**HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR**



*Christine Julia Lincoln*  
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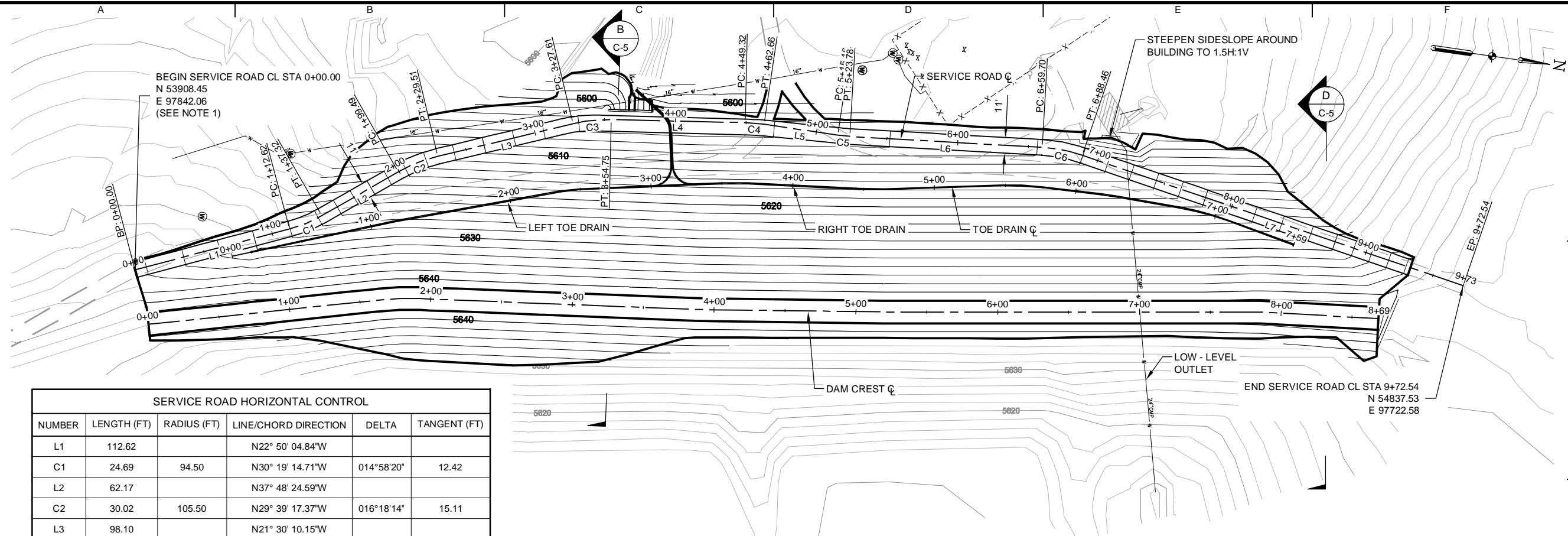
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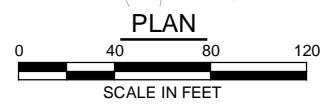
**SERVICE ROAD PLAN AND PROFILE**

**C-9**

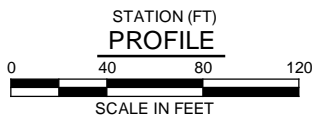
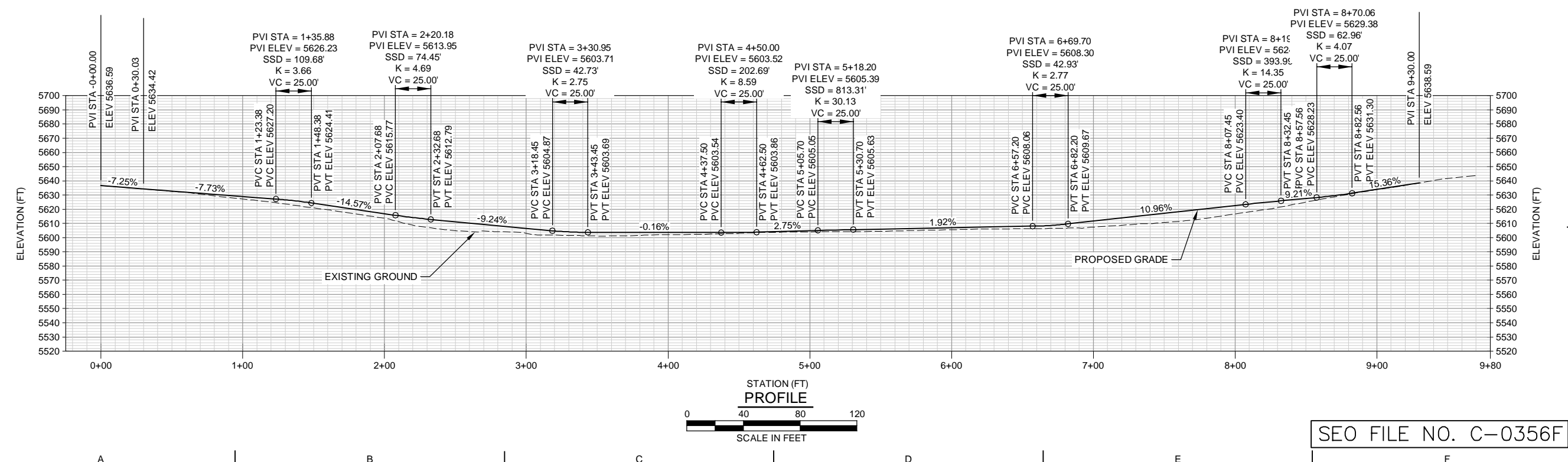
SHEET 011 OF 017



SERVICE ROAD HORIZONTAL CONTROL					
NUMBER	LENGTH (FT)	RADIUS (FT)	LINE/CHORD DIRECTION	DELTA	TANGENT (FT)
L1	112.62		N22° 50' 04.84"W		
C1	24.69	94.50	N30° 19' 14.71"W	014°58'20"	12.42
L2	62.17		N37° 48' 24.59"W		
C2	30.02	105.50	N29° 39' 17.37"W	016°18'14"	15.11
L3	98.10		N21° 30' 10.15"W		
C3	27.14	105.50	N14° 08' 03.22"W	014°44'14"	13.64
L4	94.58		N06° 45' 56.30"W		
C4	13.34	105.50	N03° 08' 35.14"W	007°14'42"	6.68
L5	52.50		N00° 28' 46.03"E		
C5	8.61	94.50	N02° 07' 53.89"W	005°13'20"	4.31
L6	135.93		N04° 44' 33.81"W		
C6	28.76	105.50	N03° 03' 58.67"E	015°37'05"	14.47
L7	284.07		N10° 52' 31.15"E		



NOTE:  
1. SERVICE ROAD TO BE RESURFACED BY OWNER AFTER CONSTRUCTION COMPLETION.



SEO FILE NO. C-0356F

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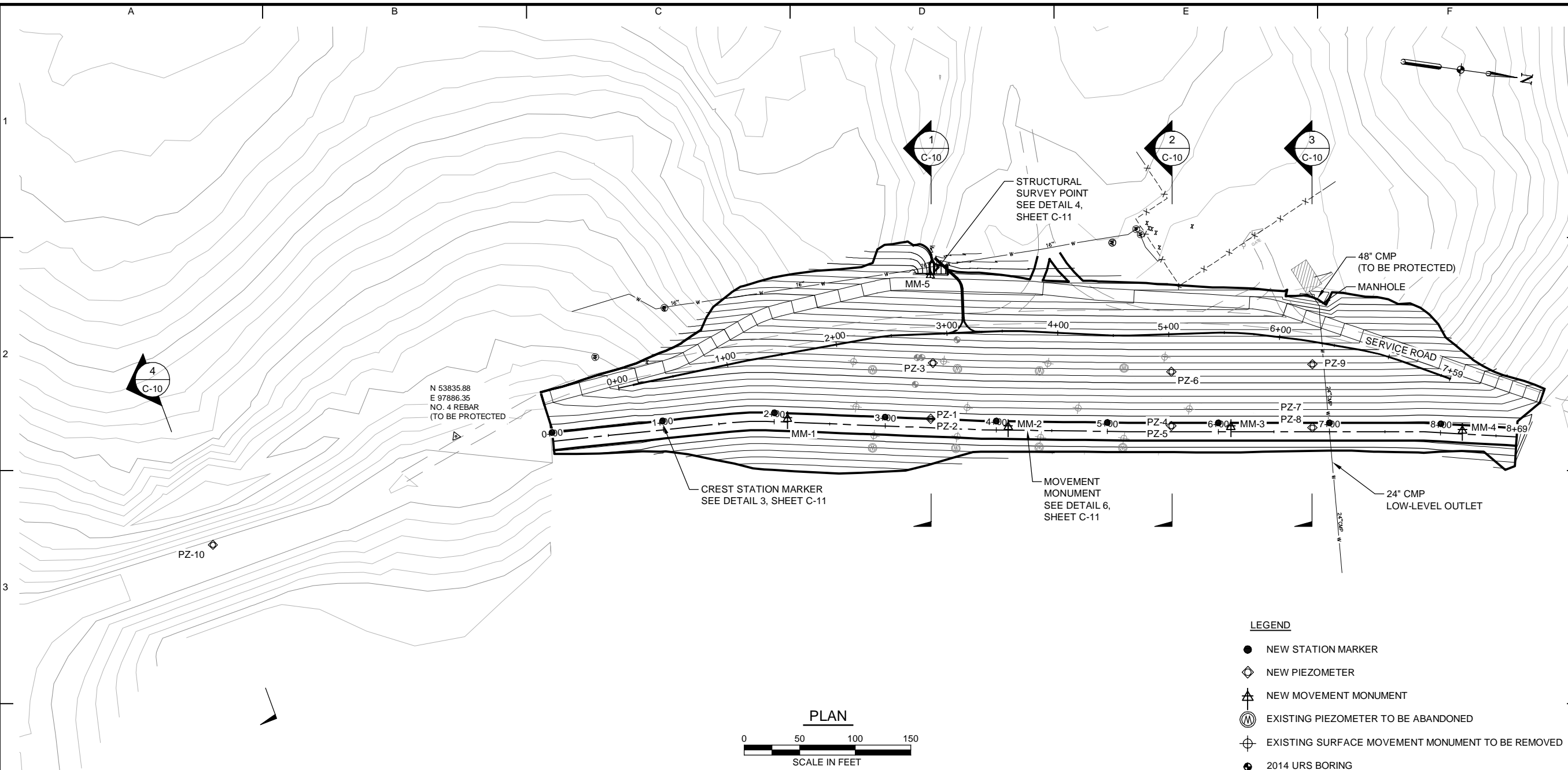
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SHEET TITLE

**INSTRUMENTATION PLAN AND SECTIONS**

SEO FILE NO. C-0356F

**C-10**  
SHEET 012 OF 017

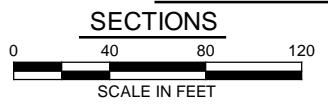
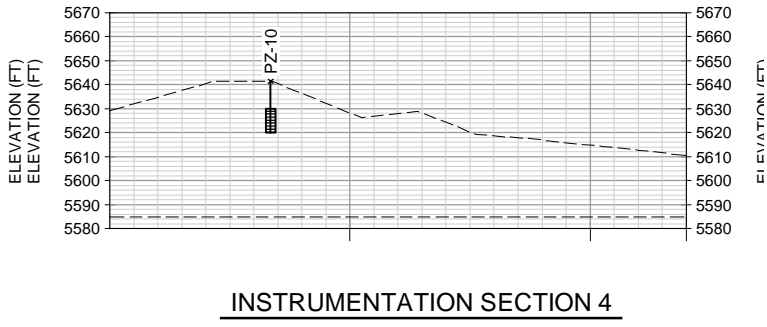
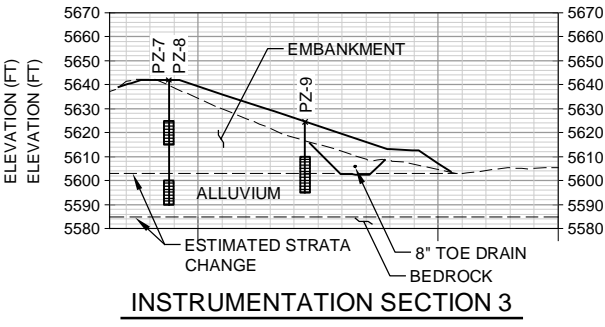
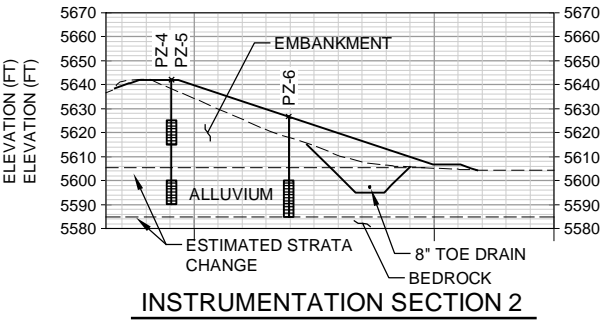
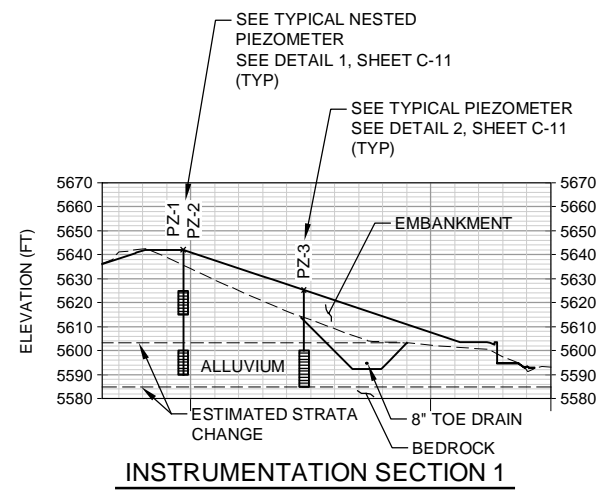


**LEGEND**

- NEW STATION MARKER
- ⊕ NEW PIEZOMETER
- ▲ NEW MOVEMENT MONUMENT
- ⊙ EXISTING PIEZOMETER TO BE ABANDONED
- ⊕ EXISTING SURFACE MOVEMENT MONUMENT TO BE REMOVED
- 2014 URS BORING

**NOTES:**

1. ABANDON EXISTING PIEZOMETERS PER SPECIFICATIONS.
2. BOREHOLES SHOULD TAG BEDROCK ESTIMATED AT EL. 5585. BOTTOM PIEZOMETER WILL BE INSTALLED IN FOUNDATION SOIL.
3. SEE PIEZOMETER SCHEDULE AND DETAIL ON SHEET C-11.



AECOM DRAWING PATH: M:\DCS\Projects\WTR\22244526\_Hallenbeck\_Mitigat\Sub\_00\7.0\_CAD\_05\7.04\_Plan\_Sheets\C-11-INSTRUMENTATION\_DETAILS.dwg  
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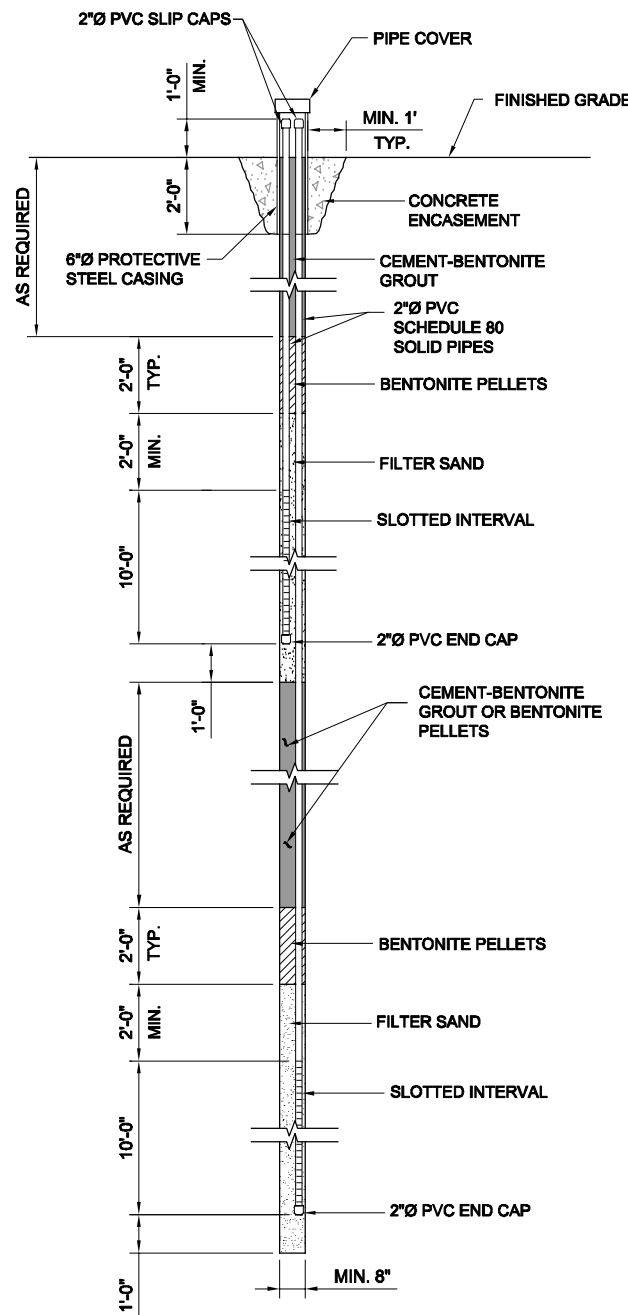
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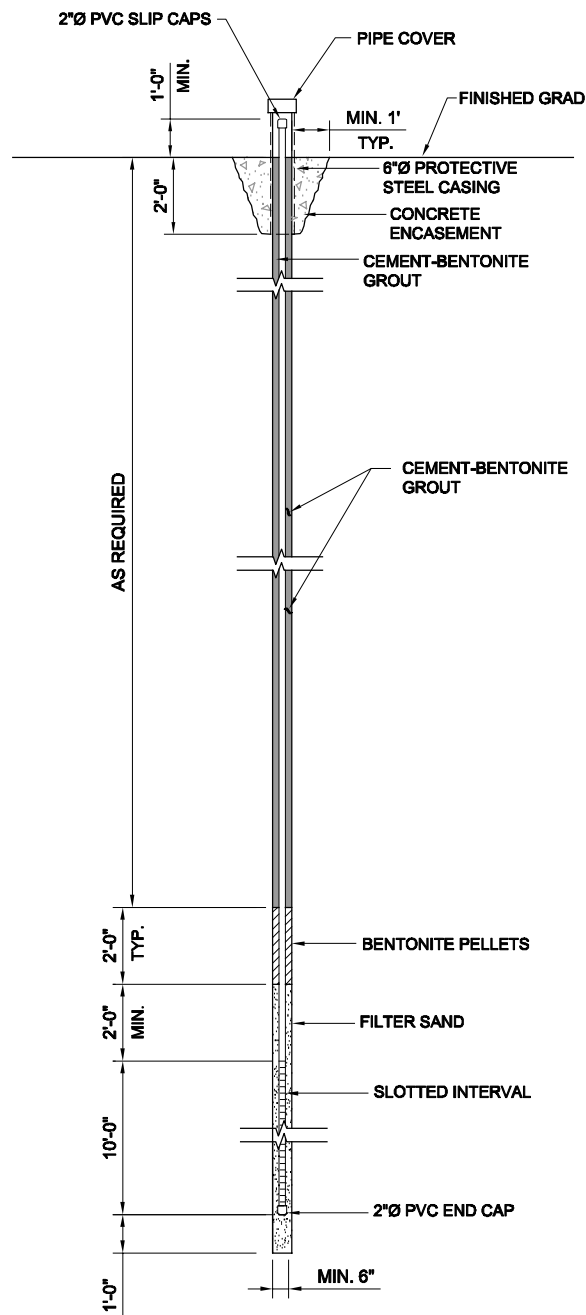
**INSTRUMENTATION DETAILS**

**C-11**

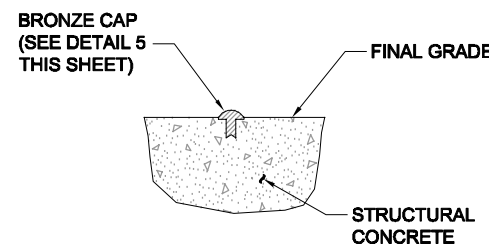
SHEET 013 OF 017



**TYPICAL NESTED STANDPIPE PIEZOMETER DETAIL** (1)  
 NOT TO SCALE C-10



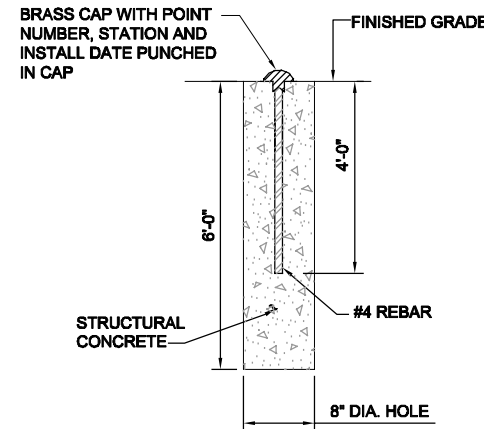
**TYPICAL STANDPIPE PIEZOMETER DETAIL** (2)  
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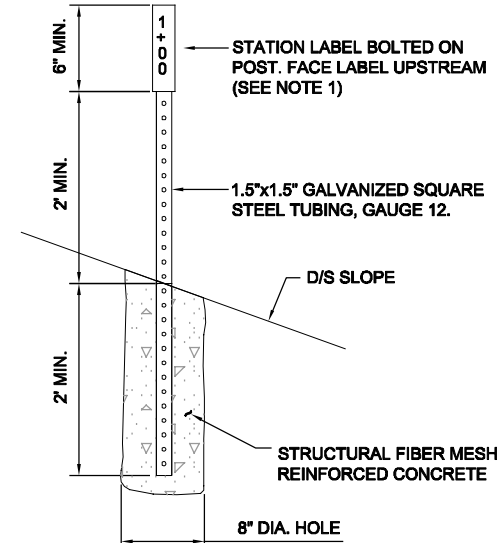
**STRUCTURAL SURVEY POINT (SSP) DETAIL** (4)  
 NOT TO SCALE S-2



**BRONZE CAP DETAIL** (5)  
 NOT TO SCALE C-11



**TYPICAL MOVEMENT MONUMENT AND BENCHMARK DETAIL** (6)  
 NOT TO SCALE  
 NOT PART OF CONTRACT. OWNER SURVEYOR TO INSTALL.



**TYPICAL STATION MARKER DETAIL** (3)  
 NOT TO SCALE  
 NOT PART OF CONTRACT. OWNER SURVEYOR TO INSTALL.

**TABLE 11 - PIEZOMETER SCHEDULE**

PIEZOMETER NO.	DAM CREST STATION	TOP OF PVC CASING	NORTHING	EASTING	SLOTTED ELEVATION	FINISHED GRADE ELEVATION	INSTRUMENTATION SECTION
PZ-1 PZ-2	3+40.70	THIS COLUMN TO BE FILLED OUT WITH AS-BUILT INFORMATION	54256.90	97811.25	5615-5625 5590-5600	5642.00	1
PZ-3	3+40.70		54251.85	97761.25	5585-5600	5625.29	1
PZ-4 PZ-5	5+57.80		54472.35	97787.43	5615-5625 5590-5600	5642.00	2
PZ-6	5+57.80		54465.55	97739.03	5585-5600	5626.67	2
PZ-7 PZ-8	6+84.50		54598.24	97771.18	5615-5625 5590-5600	5642.00	3
PZ-9	6+84.50		54586.40	97687.02	5595-5610	5615.16	3
PZ-10	SADDLE DAM		53632.86	98013.61	5620-5630	5641.37	4

**TABLE 12 - MOVEMENT MONUMENT/ STRUCTURAL SURVEY POINT SCHEDULE**

MONUMENT NO.	DAM CREST STATION	NORTHING	EASTING	FINISHED GRADE ELEVATION
MM-1	2+12	54129.12	97828.10	5642.00
MM-2	4+11	54326.88	97807.71	5642.00
MM-3	6+11	54525.44	97779.78	5642.00
MM-4	8+19	54732.29	97754.08	5642.00
MM-5	3+35.31	54238.50	97682.38	5603.60

**NOTES:**

- STATION MARKERS TO BE LOCATED APPROXIMATELY 3 FEET DOWNSTREAM OF DAM CREST EDGE AT STATIONS 1+00, 2+00, 3+00, 4+00, 5+00, 6+00, 7+00, 8+00, AND 9+00. NOT PART OF CONTRACT. OWNER TO INSTALL.
- INSTALL MOVEMENT MONUMENTS ON DOWNSTREAM SIDE OF DAM CREST AS SHOWN. NOT PART OF CONTRACT. OWNER TO INSTALL.

SEO FILE NO. C-0356F

AECOM DRAWING PATH: M:\DCS\Projects\WTR\22244526\_Hallenbeck\_Mitigat\Sub\_00\7\_0\_CAD\_GIS\7\_04\_Plan\_Sheets\C-12-BORROW AREA PLAN.dwg

LAWITT, RANDY, 5/17/2016 1:09 PM



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**CITY OF GRAND JUNCTION, COLORADO**

**HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR**



*Christine Julia Uncker*  
5/11/2016

ISSUED FOR BIDDING 5/11/2016 CJCW  
DATE BY

ISSUED FOR CONSTRUCTION \_\_\_\_\_ DATE BY

**REVISIONS**

NO.	DESCRIPTION	DATE
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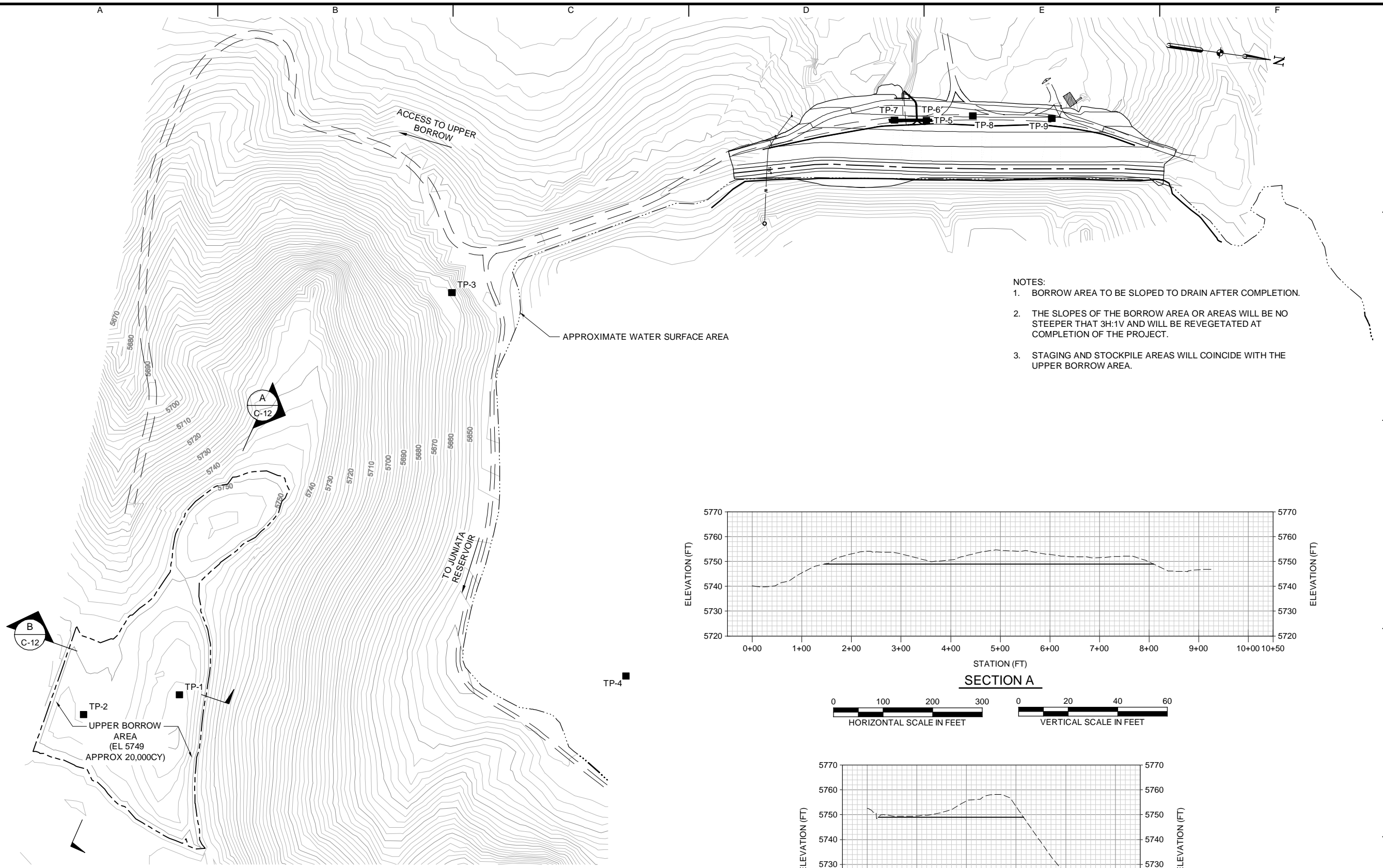
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DRAWN BY: BAT  
DESIGNED BY: ALD  
CHECKED BY: CJCW  
DATE CREATED: 7/2015  
PLOT DATE: 5/17/2016  
SCALE: AS SHOWN  
ACAD VER: 2014

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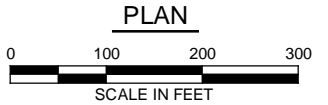
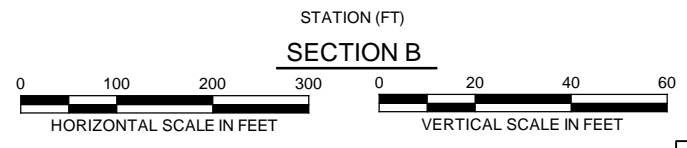
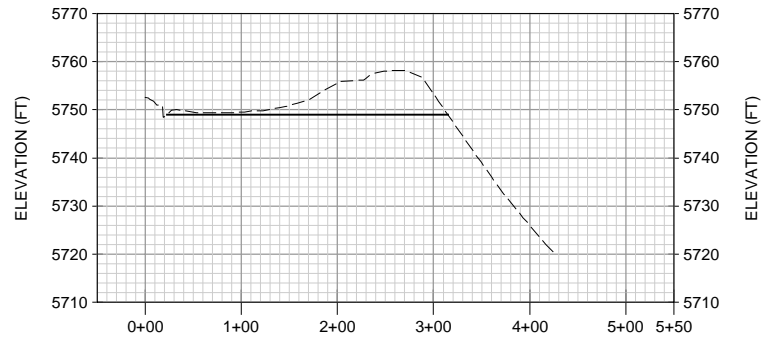
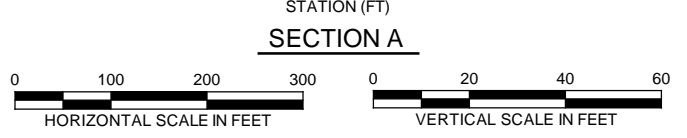
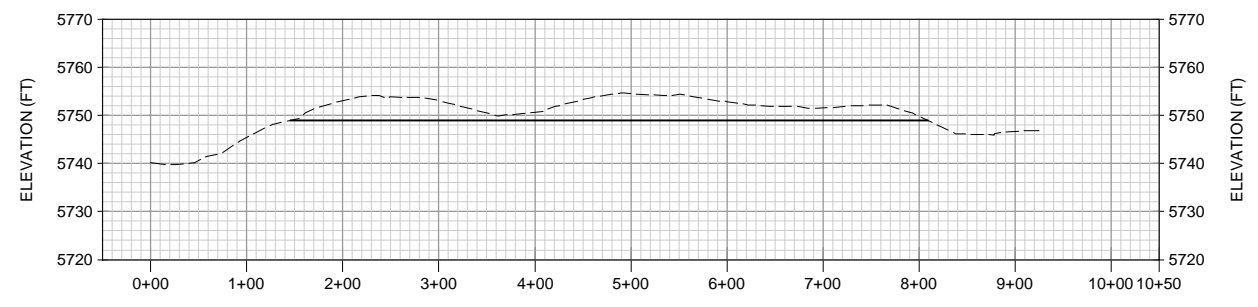
**BORROW AREA PLAN**

**C-12**

SHEET 014 OF 017



- NOTES:**
- BORROW AREA TO BE SLOPED TO DRAIN AFTER COMPLETION.
  - THE SLOPES OF THE BORROW AREA OR AREAS WILL BE NO STEEPER THAT 3H:1V AND WILL BE REVEGETATED AT COMPLETION OF THE PROJECT.
  - STAGING AND STOCKPILE AREAS WILL COINCIDE WITH THE UPPER BORROW AREA.



**LEGEND:**  
■ 2015 TEST PIT LOCATION

SEO FILE NO. C-0356F



*Christine Jala Unicker*  
5/17/2016

ISSUED FOR BIDDING 5/11/2016 CJCW  
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AECOM PROJECT NO: 60422760 / 22244526

DRAWN BY: JAM

DESIGNED BY: MS

CHECKED BY: CJCW

DATE CREATED: 7/2015

PLOT DATE: 5/17/2016

SCALE: AS SHOWN

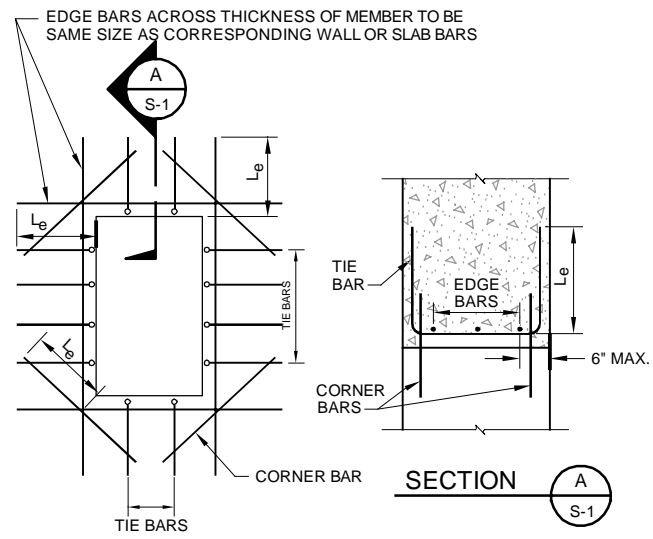
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SHEET TITLE

**STRUCTURAL NOTES, ABBREVIATIONS AND DETAILS**

**S-1**

SHEET 015 OF 017

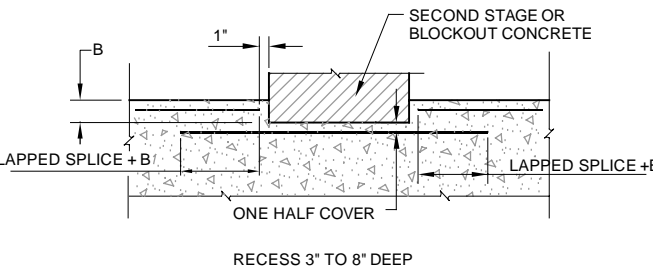


**TABLE FOR REINFORCEMENT AROUND OPENINGS**

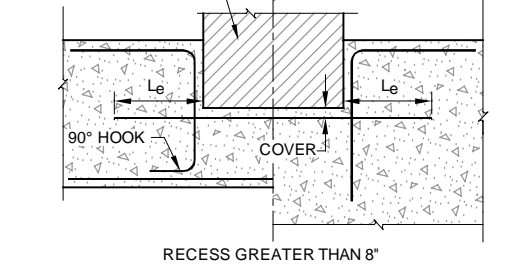
MEMBER THICKNESS	TIE BAR	EDGE BARS	CORNER BARS
LESS THAN 10"	NONE	1-CTR.	1-#4 CTR.
10" THRU 1'-6"	NONE	2-(1-EF)	2-#4 (1EF)
1'-7" THRU 3'-0"	#4 @ 1'-0"	3-EQ. SPC.	2-#6 (1EF)
OVER 3'-0"	#6 @ 1'-0"	SPC. @ 1'-0"	2-#8 (1EF)

- OMIT EDGE BARS AND TIE BARS ALONG SIDES OF OPENINGS WHERE DIMENSION IS LESS THAN 18".
- OMIT CORNER BARS AT SIDES OF OPENINGS ADJACENT TO FLOORS, WALLS, OR BEAMS.
- CORNER BARS REQUIRED IF EITHER DIMENSION OF OPENING IS GREATER THAN 18".
- USE CORNER BARS IN FACE OF RECESSES DEEPER THAN 4" IF EITHER DIMENSION OF RECESS IS GREATER THAN 18".

**ADDITIONAL REINFORCEMENT AROUND OPENINGS**

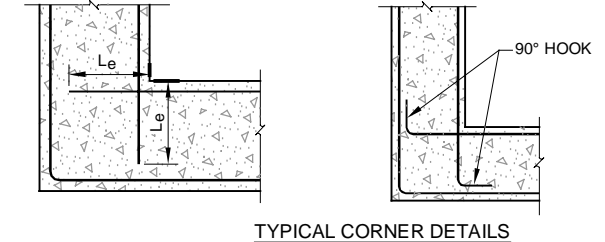


**TYPICAL BLOCKOUT RECESS OR OFFSET DETAILS**



**GENERAL NOTE**

1. UNLESS OTHERWISE SHOWN ON THE REINFORCEMENT DESIGN DRAWINGS, THE DETAILS AND NOTES SHOWN ON THIS DRAWING ARE TYPICAL FOR ALL REINFORCEMENT DRAWINGS.



**ABBREVIATIONS**

- |  |  |  |
|--|--|--|
| BF = BOTTOM FACE   | CRJ = CONTRACTION JOINT                | BL = BOTTOM LAYER                        |
| TF = TOP FACE  | EJ = EXPANSION JOINT                   | TL = TOP LAYER                           |
| NF = NEAR FACE   | BR = BOTTOM ROW                        | ML = MIDDLE LAYER                        |
| FF = FAR FACE  | TR = TOP ROW                           | NS = NEAR SIDE                           |
| EF = EACH FACE   | NR = NEAR ROW                          | FS = FAR SIDE                            |
| IF = INSIDE FACE   | FR = FAR ROW                           | ES = EACH SIDE                           |
| OF = OUTSIDE FACE  | ER = EACH ROW                          | EW = EACH WAY                            |
| CJ = CONSTRUCTION JOINT                                      | IR = INSIDE ROW                        | EC = EACH CORNER                         |
| OCJ = OPTIONAL CONSTRUCTION JOINT                            | OR = OUTSIDE ROW                       | Le = EMBEDMENT LENGTH                    |
| CTJ = CONTROL JOINT  | MR = MIDDLE ROW                        | db = NOMINAL DIAMETER OF REINFORCING BAR |
| SPC. = SPACE OR SPACES                                       | D = NORMAL DIAMETER OF REINFORCING BAR | CTR. = CENTER OR CENTERS                 |
| STD = STANDARD   | CL. = CLEAR                            |  |
| EQ. SPC. = EQUALLY SPACED, EQUAL SPACES                      |  |  |
| UV = UNIFORMLY VARYING LENGTHS OF BARS BETWEEN LENGTHS SHOWN |  |  |

**SYMBOLS**

- AN OPEN CIRCLE AT THE END OF A BAR INDICATES A BEND WITH THE BAR TURNED AWAY FROM THE OBSERVER.
- A CLOSED CIRCLE AT THE END OF A BAR INDICATES A BEND WITH THE BAR TURNED TOWARDS THE OBSERVER.
- INDICATE A LAPPED SPLICE, NOT A BEND IN THE BAR.

**DIMENSIONS**

DIMENSIONS ARE TO THE CENTERLINE OF THE BARS UNLESS OTHERWISE SHOWN. CLEAR COVER DIMENSIONS ARE MARKED "CL".

**COVER**

PLACE THE REINFORCEMENT SO THAT THE CLEAR DISTANCE BETWEEN FACE OF CONCRETE AND NEAREST REINFORCEMENT IS 1 1/2" FOR #5 BARS AND SMALLER, 2" FOR #6 BARS AND LARGER. PROVIDE 3" CLEAR DISTANCE FROM FACE OF CONCRETE FOR ALL BARS WHEN THE CONCRETE IS PLACED AGAINST EARTH OR ROCK. CLEAR DISTANCE IS THE DESIGN DIMENSION LINE. REINFORCEMENT PARALLELING CONSTRUCTION JOINTS SHALL HAVE A MINIMUM OF 2" CLEAR COVER.

**BENT BARS:**

UNLESS OTHER RADIUS BENDS ARE INDICATED ON THE DRAWINGS, ALL REINFORCEMENT REQUIRING BENDING SHALL BE BENT AROUND A PIN HAVING THE FOLLOWING DIAMETER:

**TABLE 1**  
PIN DIAMETER IN INCHES

BAR NO.	3	4	5	6	7	8	9	10	11
STANDARD BENDS	2 1/4	3	3 3/4	4 1/2	5 1/4	6	9 1/2	10 3/4	12
STIRRUP AND TIE BENDS	1 1/2	2	2 1/2	4 1/2	5 1/4	6	-	-	-

**REINFORCEMENT DOWELS:**

DOWELS INDICATED ON THE DRAWING, SUCH AS #8 (d), SHALL BE EMBEDDED A LENGTH EQUAL TO Le AND SHALL HAVE A PROJECTION EQUAL TO THAT REQUIRED FOR TOP SPlicing TO A BAR OF THE SAME DIAMETER.

**PLAIN DOWELS:**

PLAIN DOWELS ACROSS CONTRACTION JOINTS SHALL BE SMOOTH BARS UNIFORMLY COATED WITH A FILM OF OIL BEFORE CONCRETE PLACEMENT. VISCOSITY OF THE OIL SHALL HAVE A SAE RATING OF NOT LESS THAN 250.

**ACCESSORIES:**

BAR SUPPORTS, SPACERS, AND OTHER ACCESSORIES ARE NOT SHOWN ON THE DRAWINGS. THE RECOMMENDATIONS OF THE CURRENT ACI DETAILING MANUAL OR OTHER APPROVED SUPPORTING SYSTEM MAY BE USED.

**REFERENCE CODE:**

UNLESS OTHERWISE SHOWN FOLLOW THE RECOMMENDATIONS ESTABLISHED BY THE AMERICAN CONCRETE INSTITUTE'S "MANUAL OF STANDARD PRACTICE"

**NOTES TO DETAILERS:**

SPLICE LENGTHS SHOWN IN THE TABLES ON THIS DRAWING ARE FOR CLASS B SPLICES IN ACCORDANCE WITH ACI 350-2006. SPLICES OR DEVELOPMENT LENGTHS OTHER THAN THOSE SHOWN IN THE TABLES MUST BE DETAILED ON THE REINFORCEMENT DESIGN DRAWINGS.

**SPLICES:**

THE MINIMUM LENGTH OF LAP FOR SPLICING PARALLEL BARS SHALL BE GIVEN IN THE APPLICABLE TABLE (TABLE 2). SPLICES SHALL BE STAGGERED TO GIVE 12 INCHES CLEAR BETWEEN ENDS OF ADJACENT SPLICES. BARS SPLICED BY NONCONTACT LAP SPLICES SHALL NOT BE SPACED TRANSVERSELY FARTHER APART THAN ONE-FIFTH THE REQUIRED LAP SPLICE LENGTH, NOR 6 IN. WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTHS OF LAP SHALL BE GOVERNED BY THE SMALLER DIAMETER BAR. SPLICES ARE TO BE MADE SO THAT THE REQUIRED CLEAR DISTANCES TO FACE OF CONCRETE WILL BE MAINTAINED.

**PLACING:**

REINFORCEMENT AT SMALL OPENINGS (MAX. 1'-5") IN WALLS AND SLABS MAY BE SPREAD APART NOT MORE THAN 1.5 TIMES THE BAR SPACING. REINFORCEMENT MAY BE ADJUSTED LATERALLY TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1" BETWEEN THE REINFORCEMENT AND KEYS, WATERSTOPS, ANCHOR BOLTS, FORM TIES, CONDUITS AND OTHER EMBEDDED MATERIALS. IN HEAVILY REINFORCED AREAS, RELOCATION OF THE EMBEDDED MATERIAL MUST BE CONSIDERED. WHEN BARS ARE BENT DUE TO OFFSETS LESS THAN 3" DEEP, THE SLOPE OF THE INCLINED PORTION MUST NOT EXCEED 6 TO 1. REINFORCEMENT PARALLEL TO ANCHOR BOLTS OR OTHER EMBEDDED MATERIAL SHALL BE PLACED TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1.33 TIMES THE MAXIMUM SIZE AGGREGATES.

**SPACING:**

THE FIRST AND LAST BARS IN WALLS AND SLABS, STIRRUPS IN BEAMS, AND TIES IN COLUMNS ARE TO START AND END AT A MAXIMUM OF ONE HALF OF THE ADJACENT BAR SPACING. A MINIMUM OF 2.5d CLEAR FROM THE EDGE IS REQUIRED FOR #9, #10, AND #11 BARS IF SPLICE LENGTHS OR REDUCED DEVELOPMENT LENGTHS GIVEN IN TABLE 2 ARE TO BE USED.

**STANDARD HOOKS:**

HOOKS SHALL HAVE 180° BENDS AND EXTENSIONS OF 4-BAR DIAMETERS BUT NOT LESS THAN 2 1/2" PARALLEL TO THE MAIN LEG OF THE BAR, OR 90° BENDS AND EXTENSIONS OF AT LEAST 12-BAR DIAMETERS. HOOKS FOR STIRRUP AND TIE ANCHORAGE ONLY SHALL HAVE EITHER A 90° OR 135° BEND PLUS AN EXTENSION OF AT LEAST 6-BAR DIAMETERS BUT NOT LESS THAN 2 1/2" AT THE FREE END OF THE BAR. RADIUS OF BEND TO BE AS SPECIFIED IN THE TABLE OF PIN DIAMETERS.

**TABLE 2**

BAR SIZE #	MINIMUM CLEAR BAR SPACING (INCHES)	EMBEDMENT LENGTH, Le		CLASS B SPLICE LENGTH	
		OTHER BARS (INCHES)	TOP BAR* (INCHES)	OTHER BARS (INCHES)	TOP BAR* (INCHES)
3	3	12	12	16	16
4	3	12	15	16	20
5	4	15	19	20	25
6	5	18	23	24	30
7	5	25	33	33	43
8	6	29	37	38	48
9	7	36	46	47	60
10	8	44	57	58	74
11	9	53	68	69	88

\* TOP BARS ARE HORIZONTAL BARS IN BEAMS AND SLABS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

**TABLE 2 NOTE:**

- THESE LENGTHS ARE BASED ON THE PROVISIONS OF ACI 350, 2006 CHAPTER 12 ASSUMING UNCOATED REINFORCEMENT, NORMAL WEIGHT CONCRETE, CONCRETE COVER CONSISTENT WITH THE REQUIREMENTS OF THIS DRAWING, AND A MINIMUM CLEAR BAR SPACING OF 2 D. CONDITIONS THAT ARE DIFFERENT FROM THOSE ASSUMED REQUIRE LONGER LAP LENGTHS CONSISTENT WITH ACI 350.



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### CITY OF GRAND JUNCTION, COLORADO

### HALLENBECK NO. 1 DOWNSTREAM SLOPE REPAIR



*Christine Jala Uncker*  
5/11/2016

ISSUED FOR BIDDING 5/11/2016 CJCW  
DATE BY

ISSUED FOR CONSTRUCTION \_\_\_\_\_ DATE BY \_\_\_\_\_

#### REVISIONS

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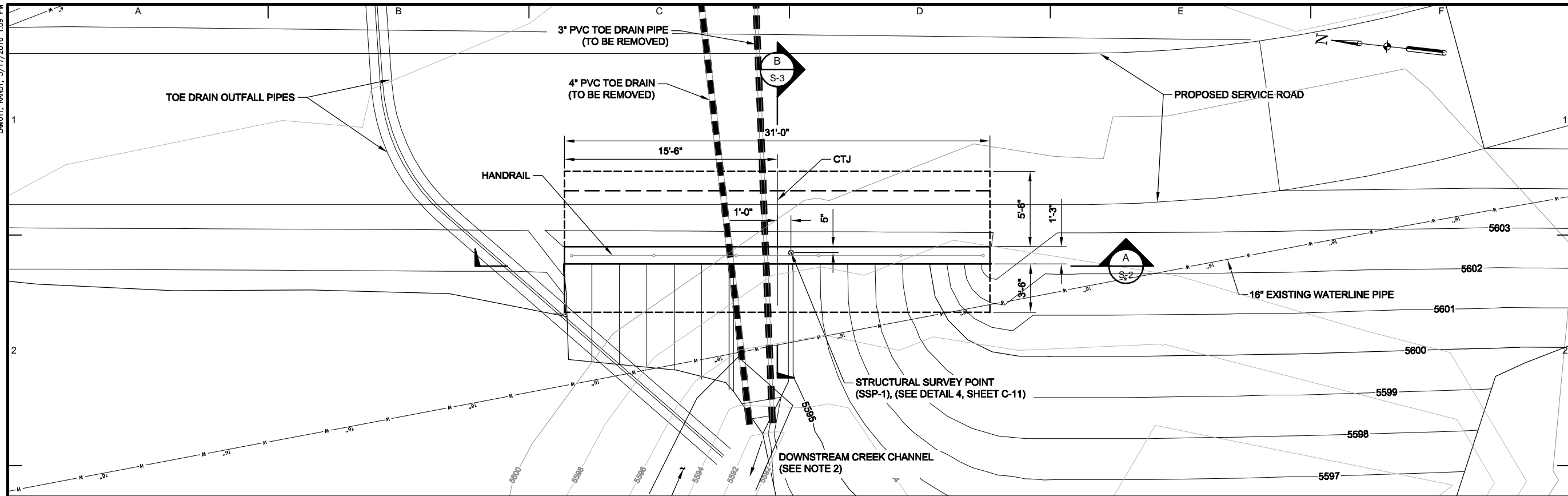
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DRAWN BY:	JAM
DESIGNED BY:	MS
CHECKED BY:	CJCW
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PLOT DATE:	5/17/2016
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ACAD VER:	2014

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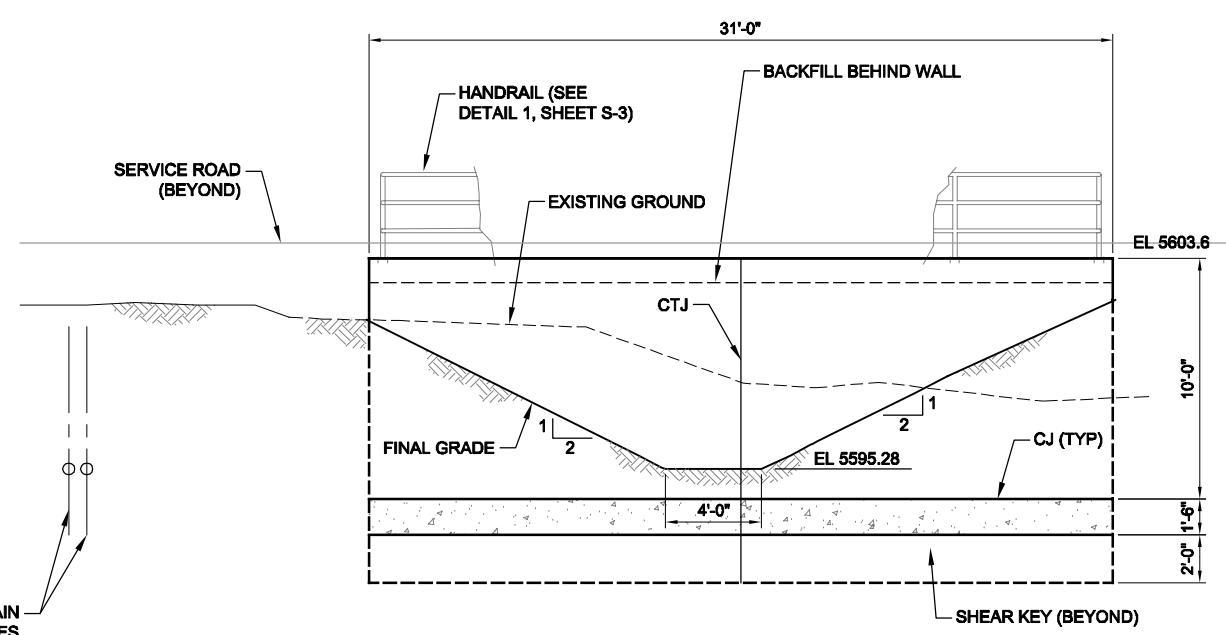
### RETAINING WALL PLAN AND SECTIONS

# S-2

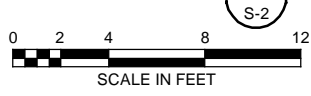
SHEET 016 OF 017



#### RETAINING WALL PLAN



#### SECTION A-A



#### NOTES:

- FOR GENERAL NOTES AND MINIMUM REQUIREMENTS FOR REINFORCEMENT, SEE SHEET S-1.
- DO NOT DISTURB THE EXISTING DOWNSTREAM CREEK CHANNEL.

SEO FILE NO. C-0356F

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**CITY OF GRAND JUNCTION, COLORADO**

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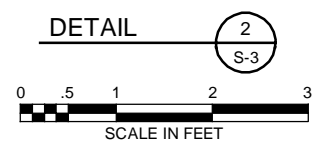
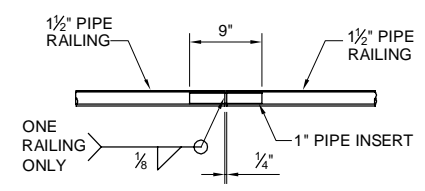
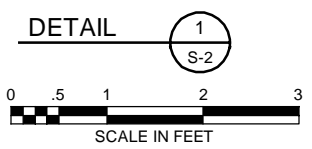
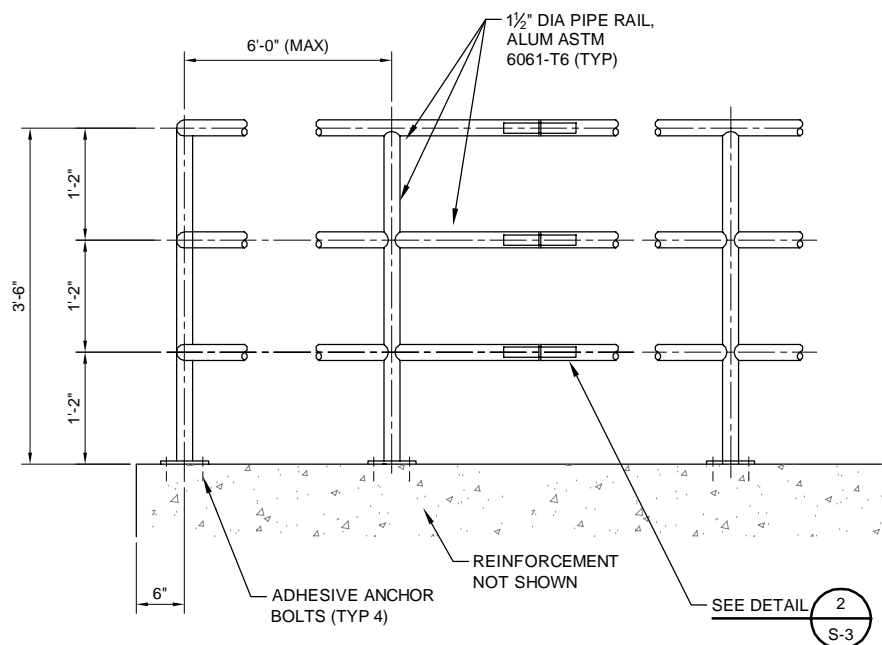
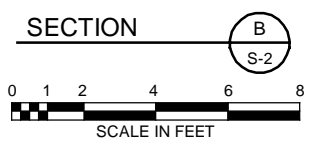
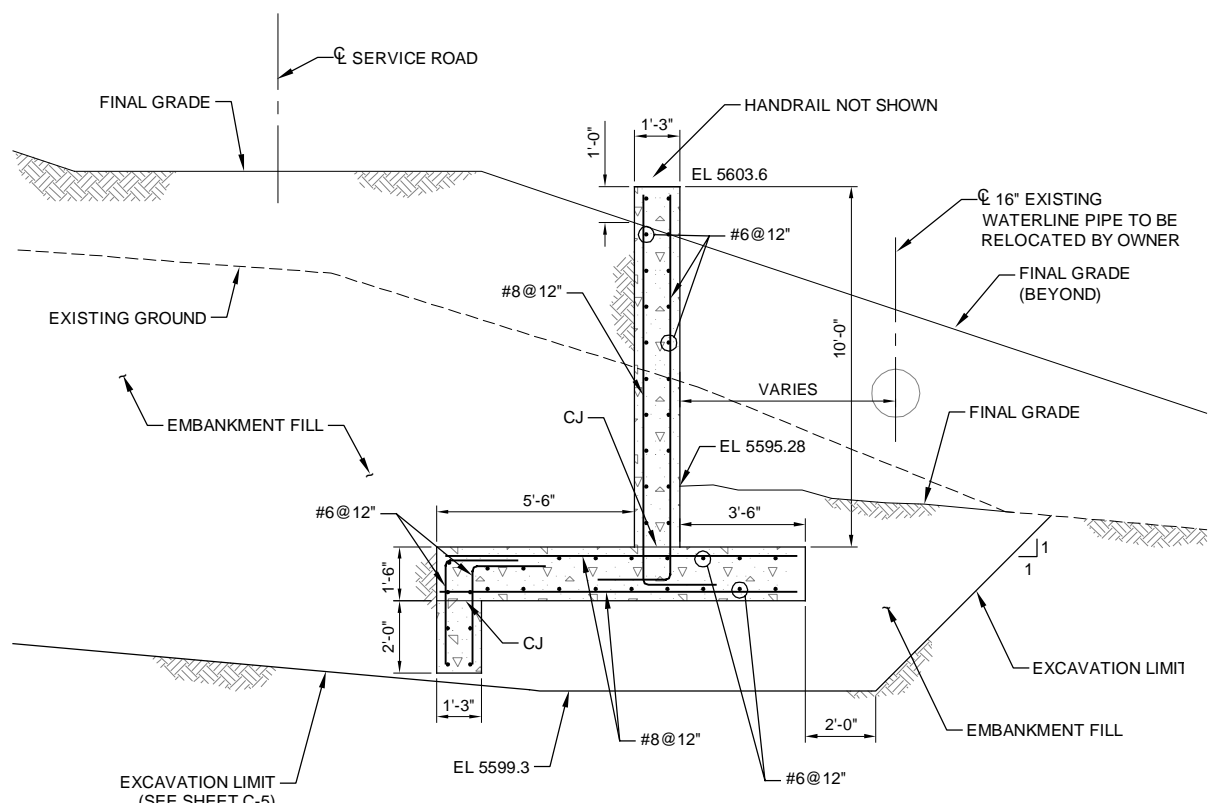
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SHEET TITLE

**RETAINING WALL SECTIONS**

**S-3**

SHEET 017 OF 017



- NOTES:**
- FOR GENERAL NOTES AND MINIMUM REQUIREMENTS FOR REINFORCEMENT, SEE DWG S-1.

SEO FILE NO. C-0356F