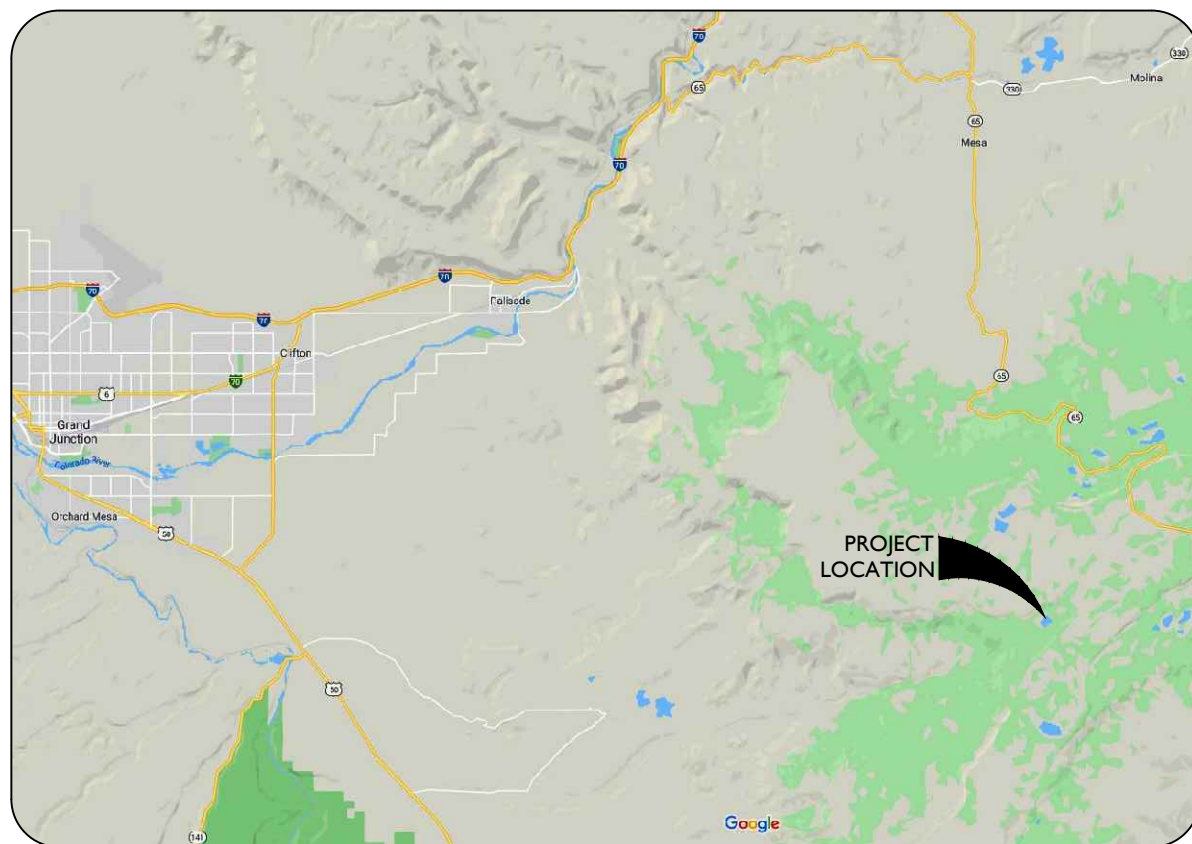


CONSTRUCTION DRAWINGS FOR HOGCHUTE (AKA CARSON) RESERVOIR DAM REHABILITATION

DAM ID NO. 420127 CONSTRUCTION NO. C-0454A
PREPARED FOR THE
CITY OF GRAND JUNCTION, MESA COUNTY, COLORADO
WATER DIVISION 4, WATER DISTRICT 42

MAY 2021

VICINITY MAP



ALSO SEE DRAWING G03 FOR PROJECT LOCATION

CONTACT INFORMATION



OWNER

City of Grand Junction
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333 West Avenue, Building C
Grand Junction, Colorado 81501
(970) 244-1558



CIVIL ENGINEER

Ayres Associates
Todd Rudolph, P.E.
3433 Oakwood Hills Parkway
Eau Claire, Wisconsin 54701-7698
(715) 834-3161

Ayres Associates
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3665 JFK Parkway, Building 2, Suite 100
Fort Collins, Colorado 80525
(970) 223-5556

**COLORADO DIVISION OF
WATER RESOURCES**

Department of Natural Resources
District 5 Dam Safety Engineer
Jackie Blumberg, PE
2768 Compass Drive, #102
Grand Junction, Colorado 81506
(303) 505-6469

**UNITED STATES
FOREST SERVICE**

Grand Valley Ranger District
Loren Paulson, Realty Specialist
2777 Crossroads Blvd.
Grand Junction, Colorado 81506
(970) 242-8211 x4112

THESE PLANS HAVE BEEN PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

Todd M. Rudolph

TODD M. RUDOLPH
COLORADO P.E. NO. 58436



APPROVED ON THE _____ DAY OF _____ 2021

STATE ENGINEER

BILL McCORMICK, CHIEF, COLORADO DAM SAFETY
COLORADO P.E. NO. 29127

THESE PLANS REPRESENT THE AS-CONSTRUCTED CONDITIONS OF HOGCHUTE DAM REPAIRS TO THE BEST OF MY KNOWLEDGE AND JUDGMENT, BASED IN PART ON INFORMATION FURNISHED BY OTHERS, AS OF THE _____ DAY OF _____ 2021

TODD M. RUDOLPH
COLORADO P.E. NO. 58436



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TITLE SHEET

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Date

Project Mgr. CTG	Designed By: AUS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO.
26-1144.00
DRAWING NO.
G01

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 GENERAL NOTES.DWG Monday, May 10, 2021 1:33 PM By: RICKS, RONALD

SHEET INDEX		
SHEET	DRAWING	DESCRIPTION
1	G01	TITLE SHEET
2	G02	INDEX TO DRAWINGS, SURVEY NOTES, AND GENERAL NOTES
3	G03	SITE ACCESS AND BORROW AREAS PLAN
4	G04	EXISTING SITE, STAGING, AND STOCKPILE AREAS PLAN
5	G05	GEOTECHNICAL INFORMATION
6	G06	RATING CURVES 1 OF 2
7	G07	RATING CURVES 2 OF 2
8	C01	EXISTING CONDITIONS, EXCAVATION, AND DEMOLITION PLAN - 1 OF 2
9	C02	EXISTING CONDITIONS, EXCAVATION, AND DEMOLITION PLAN - 2 OF 2
10	C03	DEWATERING PLAN - PHASE 1
11	C04	DEWATERING PLAN - PHASE 2
12	C05	EROSION CONTROL PLAN
13	C06	EROSION CONTROL DETAILS
14	C07	EROSION CONTROL DETAILS
15	C08	EROSION CONTROL DETAILS
16	C09	EROSION CONTROL DETAILS
17	C10	EROSION CONTROL DETAILS
18	C11	DAM PROPOSED CONDITIONS AND COFFERDAM
19	C12	DAM PROPOSED CONDITIONS ENLARGED PLAN
20	C13	DAM PROFILE AND DETAIL
21	C14	DAM DRAIN PIPE PROFILES
22	C15	DAM DETAILS 1 OF 2
23	C16	DAM DETAILS 2 OF 2
24	C17	DAM SECTIONS 1 OF 3
25	C18	DAM SECTIONS 2 OF 3
26	C19	DAM SECTIONS 3 OF 3
27	C20	SPILLWAY PLAN 1 OF 3
28	C21	SPILLWAY PLAN 2 OF 3
29	C22	SPILLWAY PLAN 3 OF 3
30	C23	SPILLWAY ROCK BERM PROFILES 1 OF 2
31	C24	SPILLWAY ROCK BERM PROFILES 2 OF 2
32	C25	SPILLWAY DETAILS AND SECTIONS
33	C26	SPILLWAY OVERFLOW WIER PLAN AND DETAILS
34	C27	SPILLWAY PRIMARY AND SECONDARY CHANNEL PLAN AND WATTLE DETAIL
35	C28	SPILLWAY PLANTING PLAN
36	C29	DAM INSTRUMENTATION
37	C30	INSTRUMENTATION DETAILS
38	C31	WETLAND IMPACT
39	C32	CONCRETE BUTTRESS REINFORCEMENT
40	C33	STEEL PIPE DETAILS
41	C34	TRASH RACK DETAILS
42	C35	TRASH RACK DETAILS
43	C36	IMPACT BASIN DETAILS
44	C37	MISCELLANEOUS DETAILS

GENERAL NOTES:

1. THESE CONSTRUCTION DRAWINGS ARE SUPPLEMENTED WITH THE TECHNICAL SPECIFICATIONS FOR HOGCHUTE DAM REHABILITATION. AN ENGINEER SEALED COPY OF BOTH DOCUMENTS MUST BE MAINTAINED AT THE JOBSITE DURING ALL PHASES OF CONSTRUCTION.
2. THIS PROJECT FALLS UNDER THE COLORADO STATE ENGINEER'S OFFICE RULE 5 OF DAM SAFETY RULES AND REGULATIONS FOR DAM SAFETY AND DAM CONSTRUCTION. THE CONTRACTOR, BY STARTING THIS PROJECT, ACKNOWLEDGES THAT THEY ARE FULLY AWARE OF THE CURRENTLY ADOPTED RULES AND REGULATIONS AND HOW THEY PERTAIN TO THEIR CONSTRUCTION PRACTICES AND SCHEDULING.
3. THIS PROJECT FALLS UNDER THE COLORADO STATE ENGINEER'S OFFICE RULE 8 FOR DAM SAFETY RULES AND REGULATIONS FOR JURISDICTIONAL EMBANKMENT DAMS. UNDER CONTRACT WITH THE OWNER, ENGINEER SHALL ENDEAVOR TO DETERMINE IN GENERAL IF SUCH WORK IS PROCEEDING IN ACCORDANCE WITH CONTRACT DOCUMENTS.
4. ALL CONSTRUCTION CHANGE ORDERS MUST BE APPROVED BY THE STATE ENGINEER'S OFFICE OF COLORADO PER RULE 8.2.5 OF DAM SAFETY RULES AND REGULATIONS FOR DAM SAFETY AND DAM CONSTRUCTION AS WELL AS THE PROJECT ENGINEER. THIS WILL NECESSITATE A LONGER PERIOD FOR REVIEW AND APPROVALS.
5. ALL CONSTRUCTION CHANGE ORDERS MUST BE APPROVED BY THE STATE ENGINEER'S OFFICE OF COLORADO AS WELL AS THE PROJECT ENGINEER. THIS WILL NECESSITATE A LONGER PERIOD FOR REVIEW AND APPROVALS.

SURVEY NOTES:

BENCHMARK:

THE HORIZONTAL AND VERTICAL CONTROL SHOWN IS BASED ON UNADJUSTED GPS STATIC OBSERVATIONS TIED TO THE GRAND MESA AREA (GMA) GEOID ESTABLISHED BY MESA COUNTY. THE NORTHERLY CONTROL POINT (POINT 2) IS A PK NAIL AND WASHER EMBEDDED IN ROCK AND IS THE BENCHMARK FOR THIS PROJECT. THE SOUTH POINT (POINT 3) IS A ROUND HEAD BOLT EMBEDDED IN ROCK.

SURVEY CONTROL POINT TABLE				
POINT NUMBER	DESCRIPTION	ELEVATION	NORTHING	EASTING
1	CP /PK-W/	9902.462	15722.80	45752.48
2	CP /PK-W/	9903.882	16393.64	45673.48
3	CP /BOLT/	9905.415	15477.14	45781.19
10	CP /BOLT/	9901.937	16157.18	45763.76
11	CP /BOLT/	9902.010	15831.42	45734.61
12	CP /BOLT/	9902.091	15606.47	45772.61

SEE DRAWING G04 FOR LOCATION OF SURVEY CONTROL POINTS.

LEGEND:

- LIMITS OF DISTURBANCE
- - - BORROW, STOCKPILE, OR STAGING AREA
- ▲ ▲ ▲ ▲ EXISTING WETLANDS
- ▬ APPROXIMATE LIMITS OF EXISTING SPILLWAY
- 9870 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PRIMARY FLOW PATH
- SECONDARY FLOW PATH
- EXISTING CHANNEL OR STREAM
- ▲ SURVEY CONTROL POINT
- GEOTECHNICAL BORE LOCATION (ORIGINAL 1947 DESIGN)
- GEOTECHNICAL BORE AND PIEZOMETER LOCATION (2018)
- TEST PIT
- EMBANKMENT FILL
- EXISTING COBBLE/ROCK SHELL
- RIPRAP
- TYPE 1 DRAIN FILL
- TYPE 2 DRAIN FILL
- EXISTING GROUND
- EXISTING CHANNEL FILL
- EXISTING CHANNEL CUT
- APPROXIMATE LIMITS OF CLEARING AND GRUBBING



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INDEX TO DRAWINGS,
SURVEY NOTES, AND
GENERAL NOTES

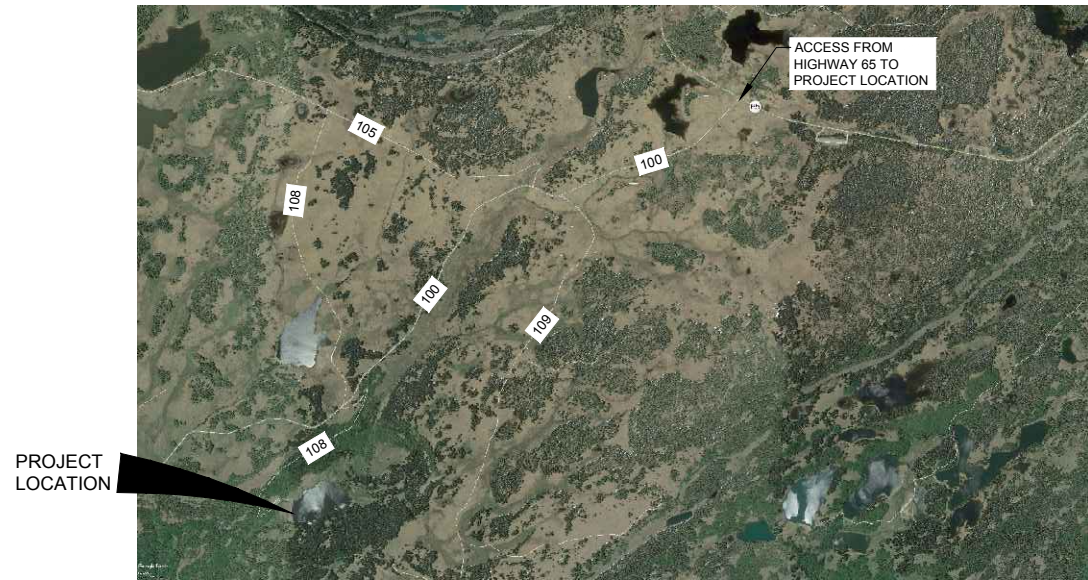
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Date	Revisions

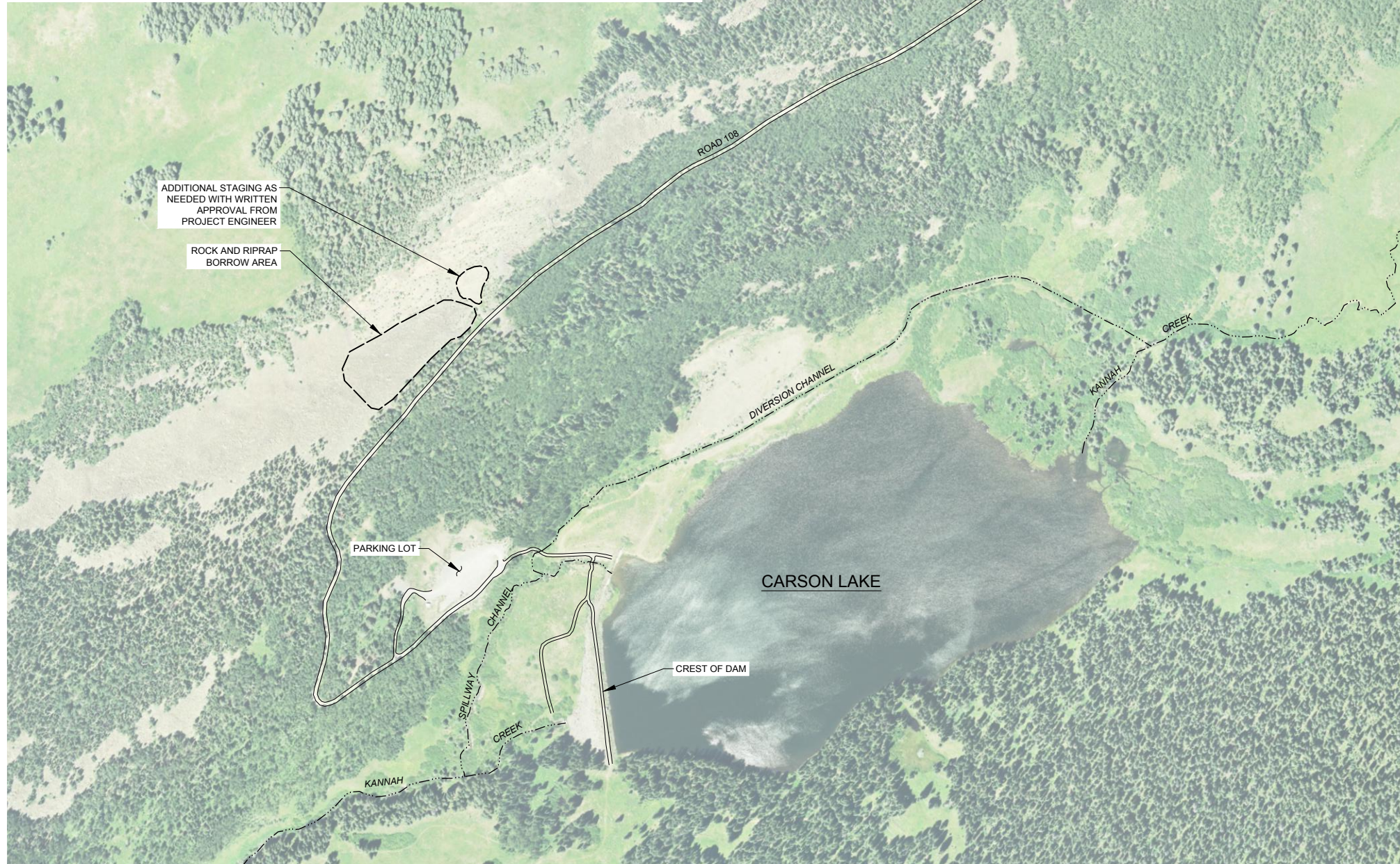
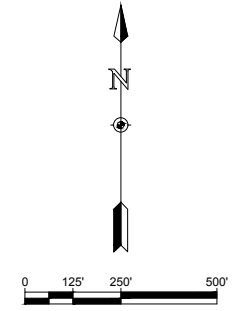
Project Mgr. CTG	Designed By: AJS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO.
26-1144.00
DRAWING NO.
G02
SHEET 2 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM\MAINDWGS 2020\SHEETS\26-11444.00 SITE ACCESS.DWG Thursday, May 06, 2021 6:14 PM By: RICKS, RONALD



INSET MAP
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AVRES

SITE ACCESS AND
BORROW AREAS PLAN

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date

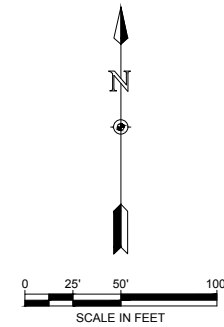
Project Mgr. CTG	Designed By: AUS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO.
26-1144.00

DRAWING NO.
G03

SHEET 3 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 STAGING AND BORROW AREAS.DWG Thursday, May 06, 2021 6:31 PM By: RICKS, RONALD



SUGGESTED WORK FLOW SEQUENCE:

CONTRACTOR MAY MODIFY SEQUENCE TO COMPLETE PROJECT

1. THE RESERVOIR IS CURRENTLY DRAINED AND WILL REMAIN DRAINED TO THE EXTENT FEASIBLE BY THE OWNER DURING CONSTRUCTION.
2. DURING CONSTRUCTION OF THE OUTLET WORKS, UP TO 50 CFS OF FLOW CAN BE DIVERTED AROUND THE RESERVOIR THROUGH THE DIVERSION CHANNEL. THE OWNER WILL OPERATE THE UPSTREAM STRUCTURE TO DIVERT FLOW.
3. WHEN CONSTRUCTION OF THE OUTLET WORKS IS COMPLETE, FLOW WILL BE DIVERTED TO THE OUTLET WORKS TO ALLOW WORK ON THE AUXILIARY SPILLWAY.
 - IF THE EMBANKMENT WORK IS COMPLETE, INCLUDING PLACEMENT OF THE ROCK/COBBLE SHELL, THE REFILLING OF THE RESERVOIR CAN BEGIN.
 - IF EMBANKMENT WORK IS NOT COMPLETE, FLOW CAN BE DIVERTED FROM THE DIVERSION CHANNEL, BUT FILLING OF THE RESERVOIR CANNOT BE INITIATED.
4. CONSTRUCTION OF AUXILIARY SPILLWAY IMPROVEMENTS.

NOTE:

CONTRACTOR TO PROVIDE PORTABLE FACILITIES FOR DURATION OF PROJECT. USE OF EXISTING VAULT SHALL NOT BE PERMISSIBLE.



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EXISTING SITE, STAGING,
AND STOCKPILE AREAS PLAN

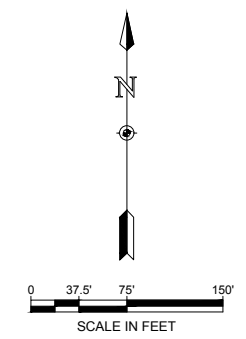
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date

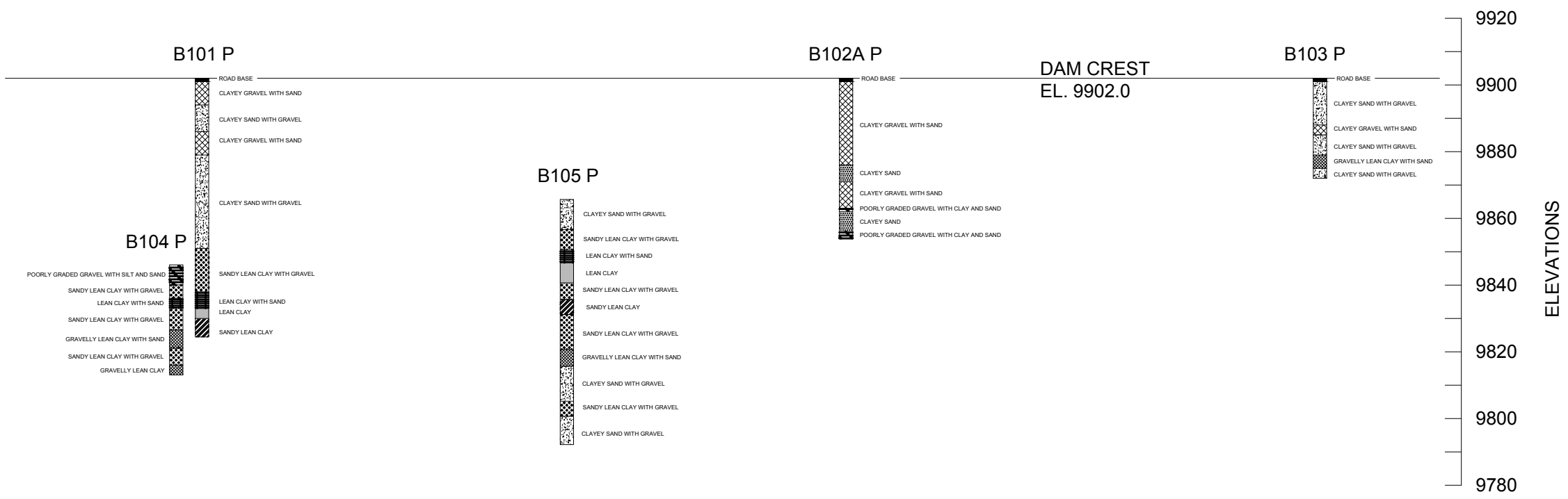
Project Mgr. CTG	Designed By: AJS
Drawn By: RBR	Approved By: TWR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.
G04
SHEET 4 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 GEOTECHNICAL INFORMATION.DWG Monday, May 10, 2021 10:42 AM By: RICKS, RONALD



- NOTES:**
- TEST PITS 1 THROUGH 3 INSTALLED AND LOGGED UNDER DIRECTION OF HUDDLESTON-BERRY ENGINEERING AND TESTING LLC. SEE DESIGN REPORT FOR BORING LOGS.
 - SOIL BORINGS B-101(P) THROUGH B-103(P) INSTALLED AND LOGGED UNDER DIRECTION OF RJH CONSULTANTS INC IN 2018. SEE DESIGN REPORT FOR BORING LOGS.
 - SOIL BORINGS 1 THROUGH 8 TAKEN FROM 1947 PLAN SET 'IMPROVEMENTS TO WATER SUPPLY SYSTEM, HOGCHUTE RESERVOIR' PRODUCED BY R.J. TIPTON AND ASSOCIATES, INC., ENGINEERS. SEE DESIGN REPORT FOR BORING LOGS.



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GEOTECHNICAL INFORMATION

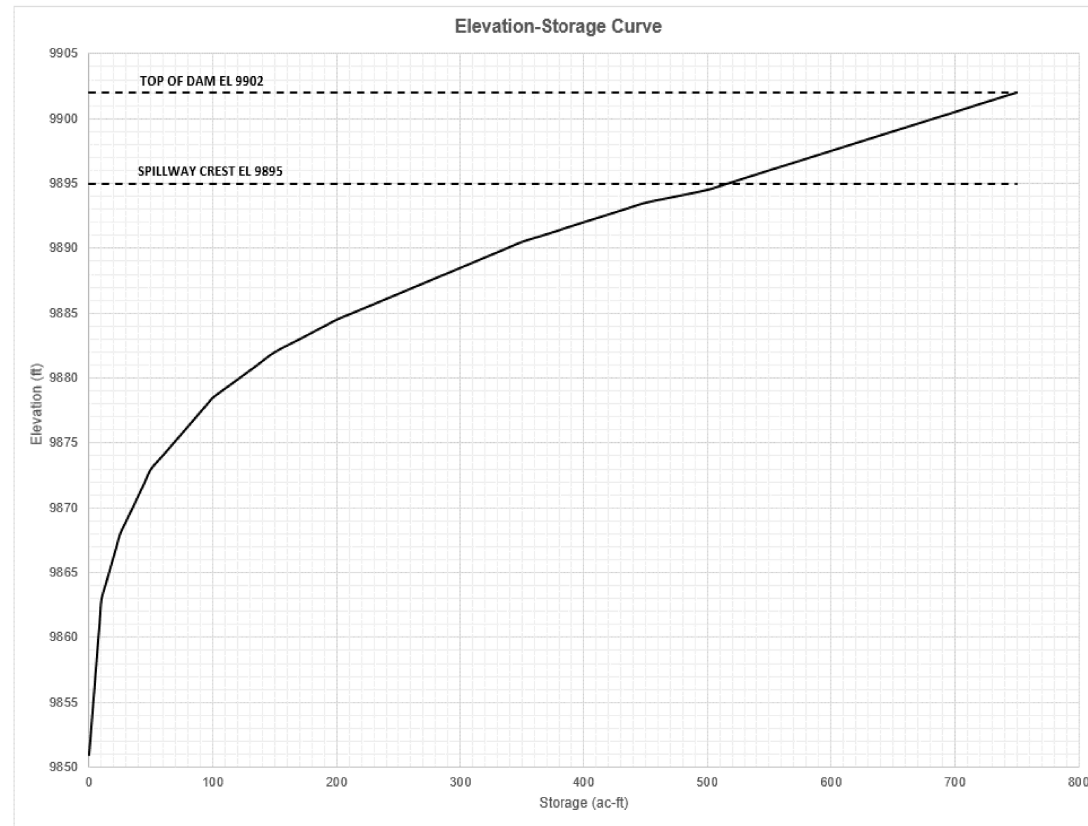
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Date	Revisions

Project Mgr. CTG	Designed By: AUS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO. 26-1144.00
DRAWING NO. **G05**

SHEET 5 OF 44

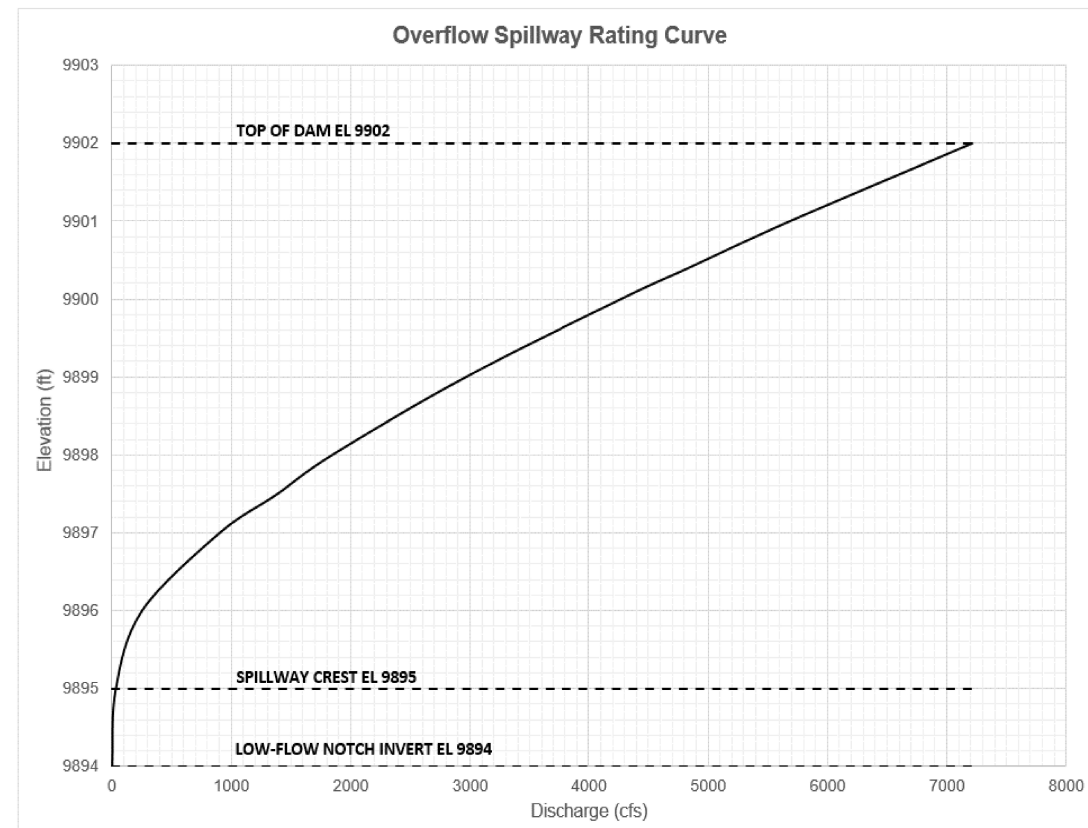


RESERVOIR STAGE-STORAGE CURVE

Elevation-Storage Table

Elevation (ft)	Storage (ac-ft)
9851	0
9852	0.8
9853	1.7
9854	2.5
9855	3.3
9856	4.2
9857	5.0
9858	5.8
9859	6.7
9860	7.5
9861	8.3
9862	9.2
9863	10
9864	13
9865	16
9866	19
9867	22
9868	25
9869	30
9870	35
9871	40
9872	45
9873	50
9874	59
9875	68
9876	77
9877	86
9878	95
9879	107
9880	121
9881	136
9882	150
9883	170
9884	190
9885	213
9886	238
9887	263
9888	288

Elevation (ft)	Storage (ac-ft)
9889	313
9890	338
9891	367
9892	400
9893	433
9894	475 (Low-Flow Notch)
9895	517 (Spillway Crest)
9896	550
9897	583
9898	617
9899	650
9900	697
9901	717
9902	750 (Top of Dam)



SPILLWAY RATING CURVE

Spillway Rating Table

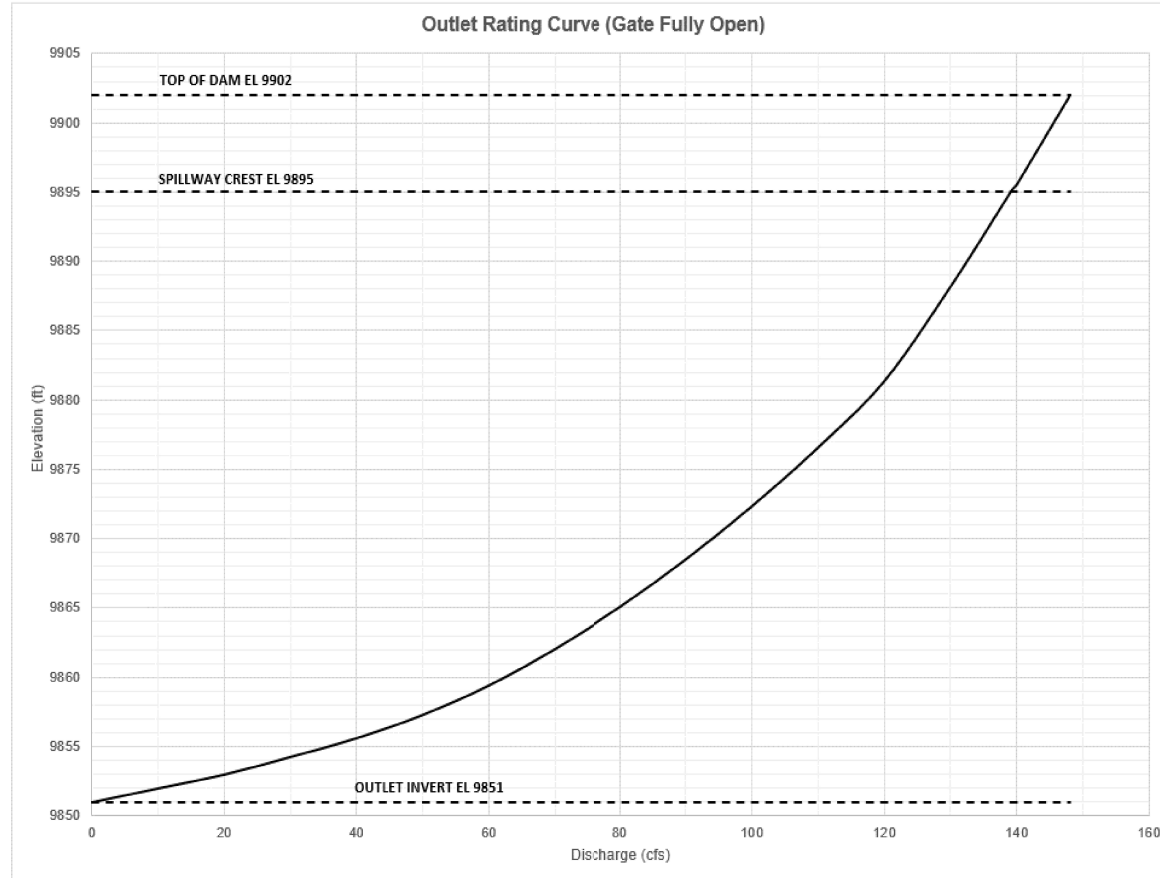
Elevation (ft)	Discharge (cfs)
9894	0 (Low-Flow Notch)
9895	31 (Spillway Crest)
9896	250
9897	900
9897.5	1382
9898	1840
9899	2960
9900	4264
9900.4	4830
9901	5680
9902	7207 (Top of Dam)



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Revisions	Date

Project Mgr. CTG	Designed By: AUS
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Date: 05/10/21	



OUTLET WORKS RATING CURVE

Outlet Rating Table (Gate Fully Open)

Elevation (ft)	Discharge (cfs)	Elevation (ft)	Discharge (cfs)
9851	0.0 (Invert)	9889	130.3
9852	10.0	9890	131.8
9853	20.0	9891	133.0
9854	27.0	9892	134.5
9855	34.5	9893	136.0
9856	41.0	9894	137.3 (Low-Flow Notch)
9857	47.0	9895	139.0 (Spillway Crest)
9858	52.5	9896	140.0
9859	57.5	9897	141.3
9860	62.0	9898	142.5
9861	66.3	9899	143.8
9862	70.0	9900	145.0
9863	74.0	9901	146.3
9864	77.3	9902	148.0 (Top of Dam)
9865	80.5		
9866	83.5		
9867	86.5		
9868	89.3		
9869	92.0		
9870	94.5		
9871	97.0		
9872	99.3		
9873	101.5		
9874	103.8		
9875	105.9		
9876	108.2		
9877	110.4		
9878	112.6		
9879	114.6		
9880	116.6		
9881	118.3		
9882	120.0		
9883	121.8		
9884	123.0		
9885	124.4		
9886	126.2		
9887	127.5		
9888	128.8		



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RATING CURVES 2 OF 2

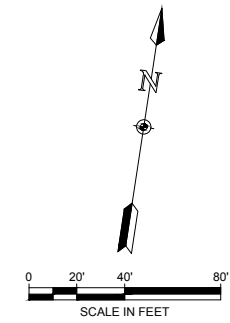
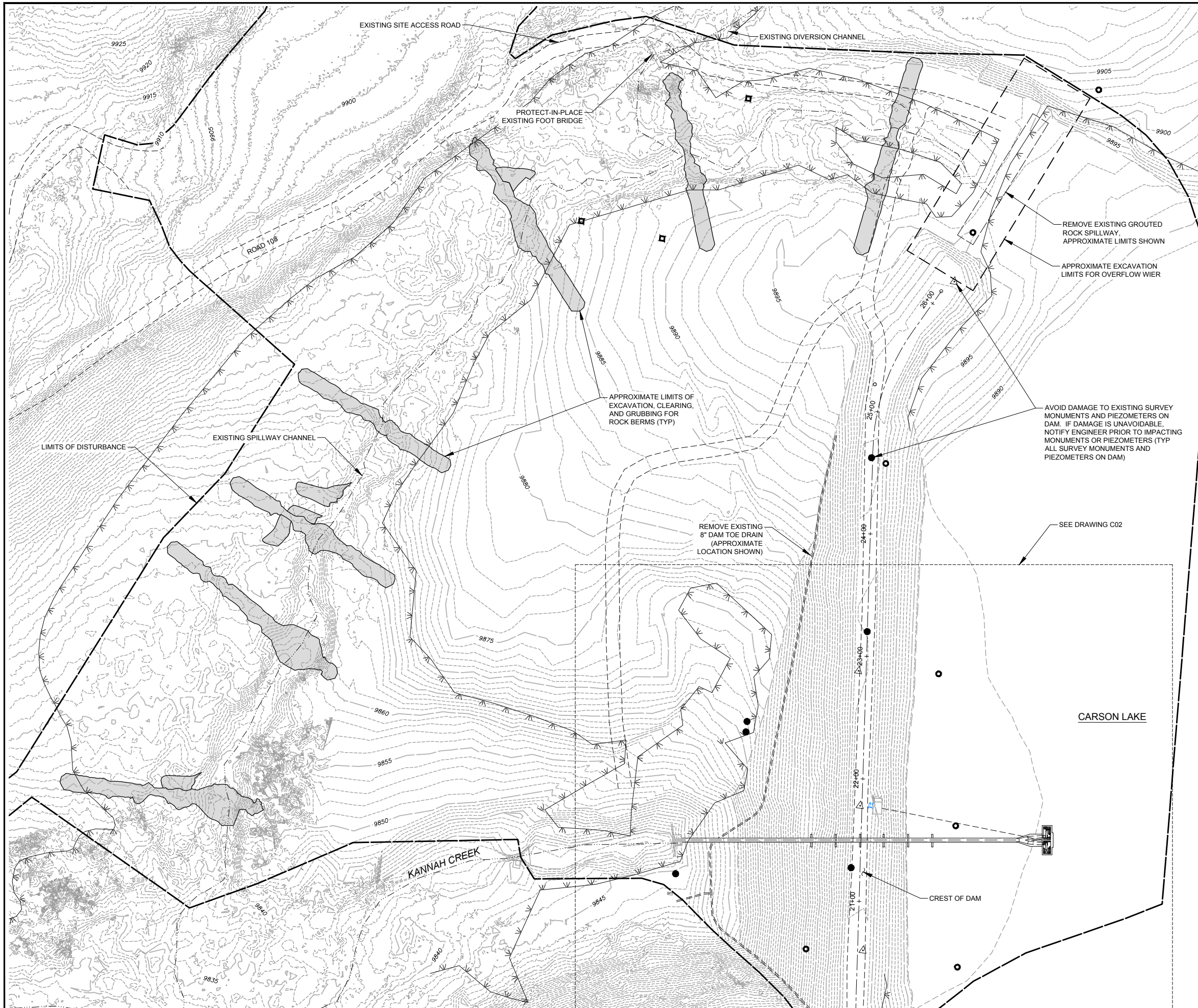
**HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO**

Revisions	Date

Project Mgr. CTG	Designed By: AUS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.
G07
SHEET 7 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 EXISTING CONDITIONS AND DEMOLITION PLAN 2.DWG Monday, May 10, 2021 8:44 AM By: RICKS, RONALD



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EXISTING CONDITIONS,
EXCAVATION, AND
DEMOLITION PLAN - 1 OF 2

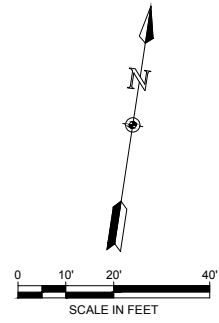
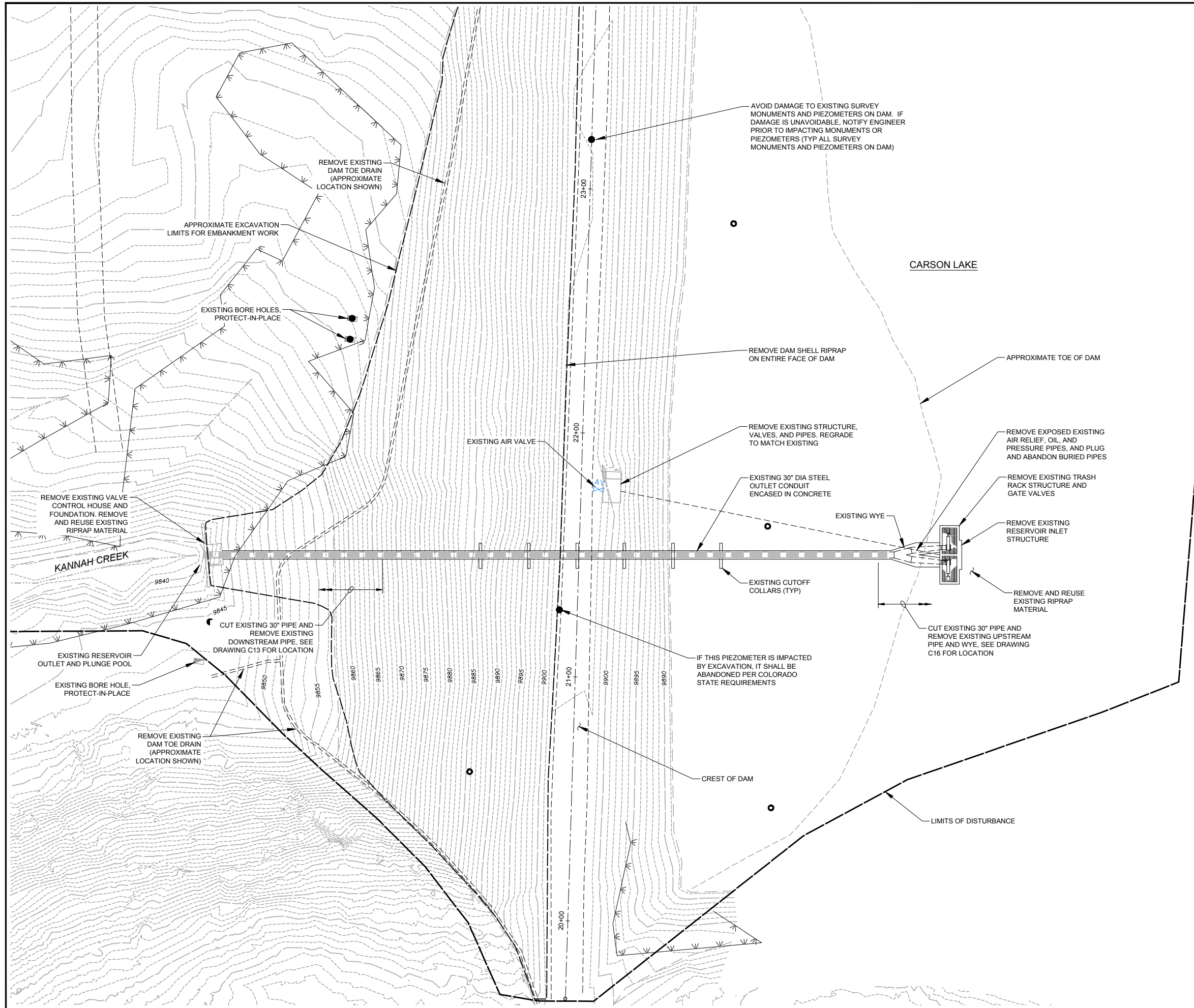
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date

Project Mgr. CTG	Designed By: AJS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.
C01
SHEET 8 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020 SHEETS\26-11444.00 EXISTING CONDITIONS AND DEMOLITION PLAN.DWG Monday, May 10, 2021 8:45 AM By: RICKS, RONALD



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EXISTING CONDITIONS,
EXCAVATION, AND
DEMOLITION PLAN - 2 OF 2

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

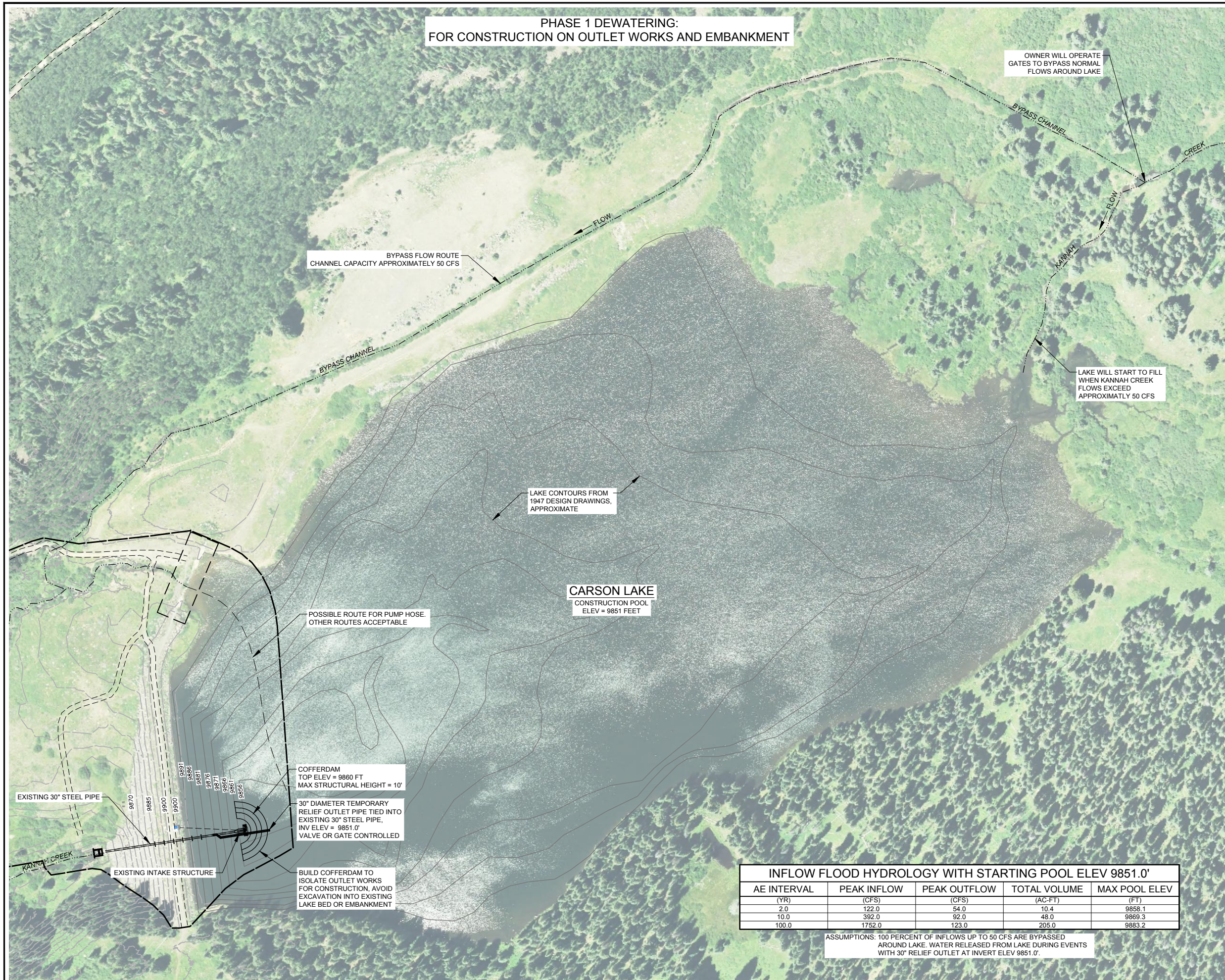
Revisions	Date

Project Mgr. CTG	Designed By: AJS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO. 26-1144.00
DRAWING NO. C02

SHEET 9 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DEWATERING PLAN PHASE 1.DWG Monday, May 10, 2021 3:55 PM By: RICKS, RONALD



**PHASE 1 DEWATERING:
FOR CONSTRUCTION ON OUTLET WORKS AND EMBANKMENT**

OWNER WILL OPERATE GATES TO BYPASS NORMAL FLOWS AROUND LAKE

BYPASS FLOW ROUTE CHANNEL CAPACITY APPROXIMATELY 50 CFS

LAKE WILL START TO FILL WHEN KANNAH CREEK FLOWS EXCEED APPROXIMATELY 50 CFS

LAKE CONTOURS FROM 1947 DESIGN DRAWINGS, APPROXIMATE

CARSON LAKE
CONSTRUCTION POOL
ELEV = 9851 FEET

POSSIBLE ROUTE FOR PUMP HOSE. OTHER ROUTES ACCEPTABLE

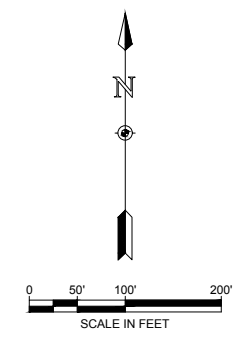
COFFERDAM TOP ELEV = 9860 FT
MAX STRUCTURAL HEIGHT = 10'

30" DIAMETER TEMPORARY RELIEF OUTLET PIPE TIED INTO EXISTING 30" STEEL PIPE, INV ELEV = 9851.0' VALVE OR GATE CONTROLLED

BUILD COFFERDAM TO ISOLATE OUTLET WORKS FOR CONSTRUCTION, AVOID EXCAVATION INTO EXISTING LAKE BED OR EMBANKMENT

INFLOW FLOOD HYDROLOGY WITH STARTING POOL ELEV 9851.0'				
AE INTERVAL	PEAK INFLOW	PEAK OUTFLOW	TOTAL VOLUME	MAX POOL ELEV
(YR)	(CFS)	(CFS)	(AC-FT)	(FT)
2.0	122.0	54.0	10.4	9858.1
10.0	392.0	92.0	48.0	9869.3
100.0	1752.0	123.0	205.0	9883.2

ASSUMPTIONS: 100 PERCENT OF INFLOWS UP TO 50 CFS ARE BYPASSED AROUND LAKE. WATER RELEASED FROM LAKE DURING EVENTS WITH 30" RELIEF OUTLET AT INVERT ELEV 9851.0'.



NOTES:

1. THE COFFERDAM WILL NOT PROTECT THE WORKSITE FROM THE 10-YR FLOOD. CONTRACTOR SHALL MONITOR WEATHER FORECASTS AND EVACUATE PERSONNEL AND EQUIPMENT FROM THE LAKE IF STORM ACTIVITY IS EXPECTED OR IF BYPASS CHANNEL IS APPROACHING CAPACITY.
2. PUMPING FROM LAKE TO MAINTAIN CONSTRUCTION POOL MAY BE REQUIRED IF NORMAL, NON-FLOOD FLOWS EXCEED THE BYPASS CHANNEL'S 50 CFS CAPACITY. AVERAGE MONTHLY INFLOWS PROVIDED ON SHEET C03.
3. CONTRACTOR MUST COORDINATE WITH WATER SUPPLY SUPERVISOR TO DIVERT UPSTREAM INFLOWS TO DIVERSION CHANNEL.

EXPECTED CONSTRUCTION SEQUENCING DURING PHASE 1 DEWATERING:

1. DRAW DOWN LAKE TO CONSTRUCTION POOL ELEVATION.
2. CONSTRUCT COFFERDAM WITH RELIEF OUTLET TIED INTO EXISTING 30" PIPE.
3. COMPLETE CONSTRUCTION ON OUTLET WORKS, EMBANKMENT, IMPACT BASIN, AND PRIMARY STATION INSTRUMENTATION.
4. REMOVE COFFERDAM.
5. COMMENCE PHASE 2 DEWATERING.



ONE INCH - IF NOT, SCALE ACCORDINGLY

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DEWATERING PLAN - PHASE 1

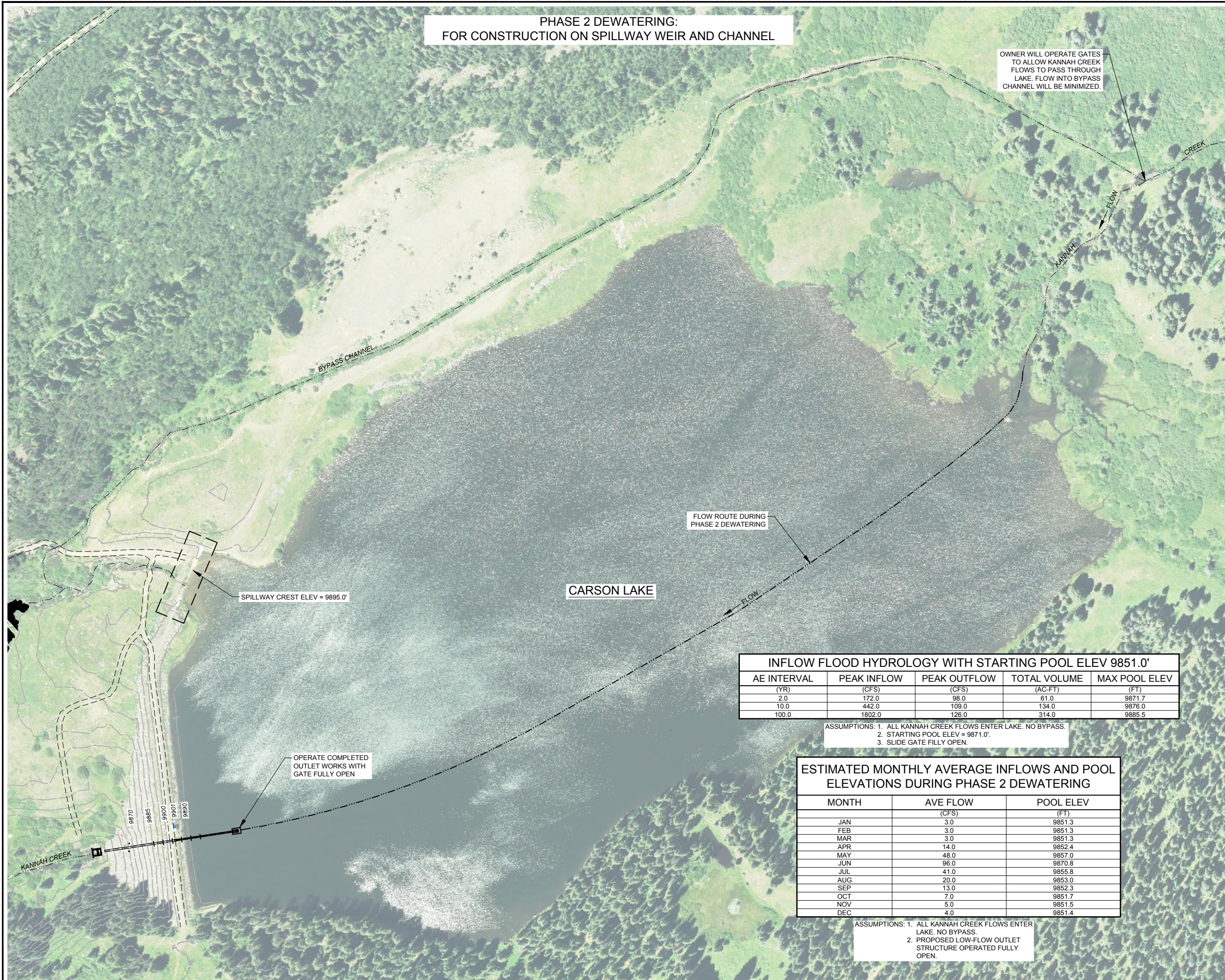
**HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO**

Revisions	Date

Project Mgr. CTG	Designed By: AUS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO. 26-1144.00
DRAWING NO. C03
SHEET 10 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DEWATERING PLAN PHASE 2.DWG Friday, February 26, 2021 5:40 PM By: RICKS, RONALD



INFLOW FLOOD HYDROLOGY WITH STARTING POOL ELEV 9851.0'

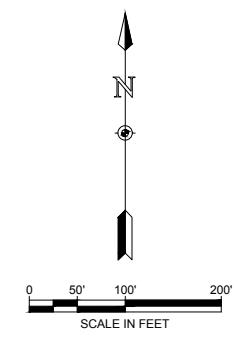
AE INTERVAL (YR)	PEAK INFLOW (CFS)	PEAK OUTFLOW (CFS)	TOTAL VOLUME (AC-FT)	MAX POOL ELEV (FT)
2.0	172.0	98.0	61.0	9871.7
10.0	442.0	109.0	134.0	9876.0
100.0	1802.0	126.0	314.0	9885.5

ASSUMPTIONS: 1. ALL KANNAH CREEK FLOWS ENTER LAKE. NO BYPASS.
 2. STARTING POOL ELEV = 9871.0'.
 3. SLIDE GATE FULLY OPEN.

ESTIMATED MONTHLY AVERAGE INFLOWS AND POOL ELEVATIONS DURING PHASE 2 DEWATERING

MONTH	AVE FLOW (CFS)	POOL ELEV (FT)
JAN	3.0	9851.3
FEB	3.0	9851.3
MAR	3.0	9851.3
APR	14.0	9852.4
MAY	48.0	9857.0
JUN	96.0	9870.8
JUL	41.0	9855.8
AUG	20.0	9853.0
SEP	13.0	9852.3
OCT	7.0	9851.7
NOV	5.0	9851.5
DEC	4.0	9851.4

ASSUMPTIONS: 1. ALL KANNAH CREEK FLOWS ENTER LAKE. NO BYPASS.
 2. PROPOSED LOW-FLOW OUTLET STRUCTURE OPERATED FULLY OPEN.



EXPECTED CONSTRUCTION SEQUENCING DURING PHASE 2 DEWATERING:

1. OPERATE COMPLETED OUTLET WORKS WITH SLIDE GATE FULLY OPEN.
2. COMPLETE WORK ON SPILLWAY WEIR AND CHANNEL.

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DEWATERING PLAN - PHASE 2

**HOGCHUTE (AKA CARSON)
 RESERVOIR DAM REHABILITATION
 CITY OF GRAND JUNCTION
 MESA COUNTY, COLORADO**

Date	Revisions

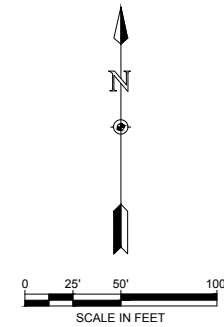


ONE INCH - IF NOT, SCALE ACCORDINGLY

Project Mgr. CTG
 Designed By: AUS
 Drawn By: RBR
 Approved By: TMR
 Date: 05/10/21

PROJECT NO. 26-1144.00
 DRAWING NO. C04
 SHEET 11 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 EROSION CONTROL DETAILS.DWG Friday, May 07, 2021 9:30 AM By: RICKS, RONALD



NOTES:

1. ALL TEMPORARY AND PERMANENT EROSION CONTROL SHALL COMPLY WITH THE MOST RECENT CDOT M&S STANDARDS.
2. THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS BY SURFACE ROUGHENING, VERTICAL TRACKING, OR A COMBINATION THEREOF.
3. FOR EROSION CONTROL AT THE SPILLWAY CHANNEL BERMS SEE TYPICAL SECTIONS ON SHEET C25.
4. A PALLIATIVE SHALL BE USED TO CONTROL DUST PRODUCED BY CONSTRUCTION ACTIVITIES.
5. THE CONTRACTOR SHALL PROTECT EXISTING VEGETATION AND LIMIT IMPACT TO WETLAND AREAS.
6. THE CONTRACTOR SHALL CHECK EROSION CONTROL MEASURES AFTER EVERY PRECIPITATION EVENT. IF REPAIRS ARE NEEDED, REPAIRS SHALL BE PERFORMED IMMEDIATELY.
7. THE CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGE TO FS ROAD 108 AT CONTRACTOR'S EXPENSE PRIOR TO ISSUANCE OF FINAL ACCEPTANCE.



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EROSION CONTROL PLAN

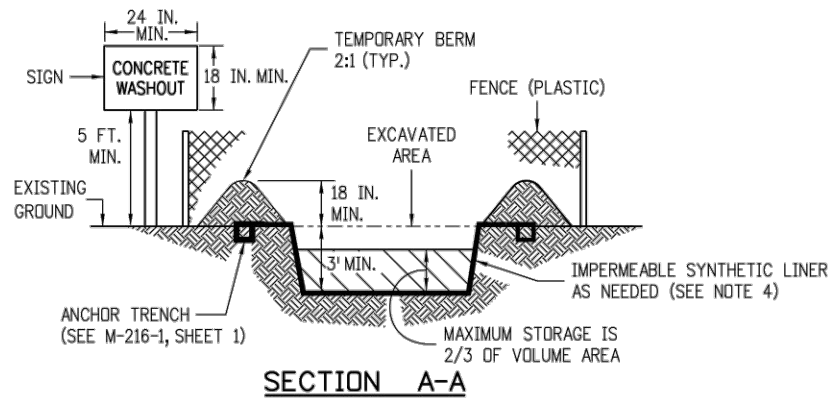
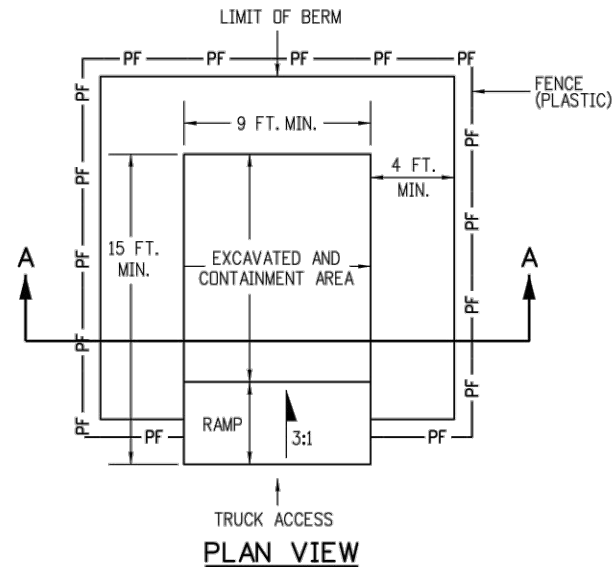
**HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO**

Date	Revisions

Project Mgr. CTG	Designed By: AJS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO. 26-1144.00	DRAWING NO. C05
SHEET 12 OF 44	

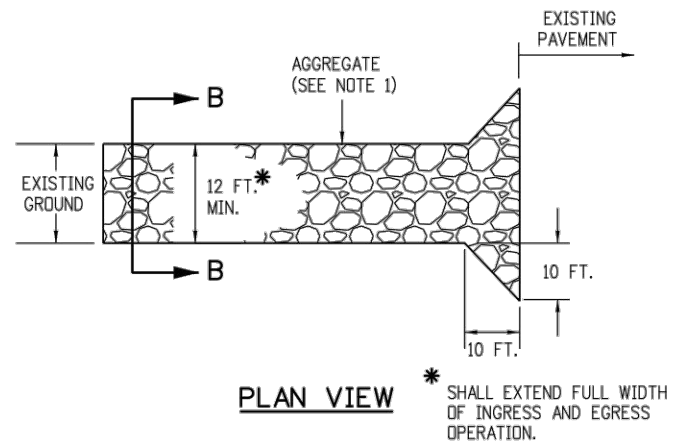
Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 EROSION CONTROL DETAILS.DWG Friday, May 07, 2021 9:30 AM By: RICKS, RONALD



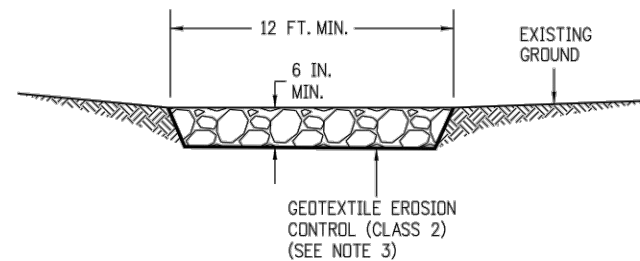
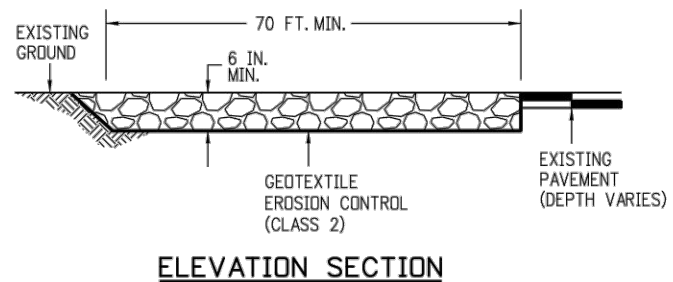
NOTES:

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

PORTABLE CONCRETE WASHOUT STRUCTURE



* SHALL EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION.



NOTES:

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

VEHICLE TRACKING PAD

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

Sheet Revisions	
Date:	Comments

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TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-208-1
Standard Sheet No. 1 of 11

Project Sheet Number:



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EROSION CONTROL DETAILS

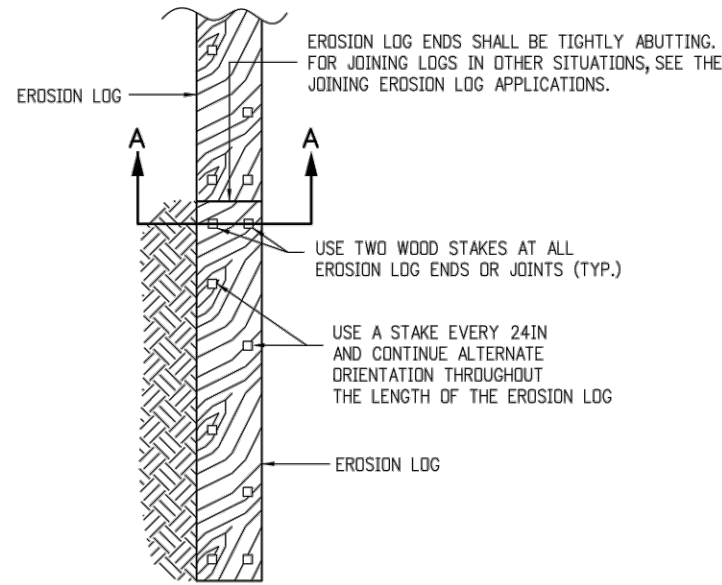
HOGCHUTE (AKA CARSON)
 RESERVOIR DAM REHABILITATION
 CITY OF GRAND JUNCTION
 MESA COUNTY, COLORADO

Date	Revisions

Project Mgr. CTG	Designed By: AUS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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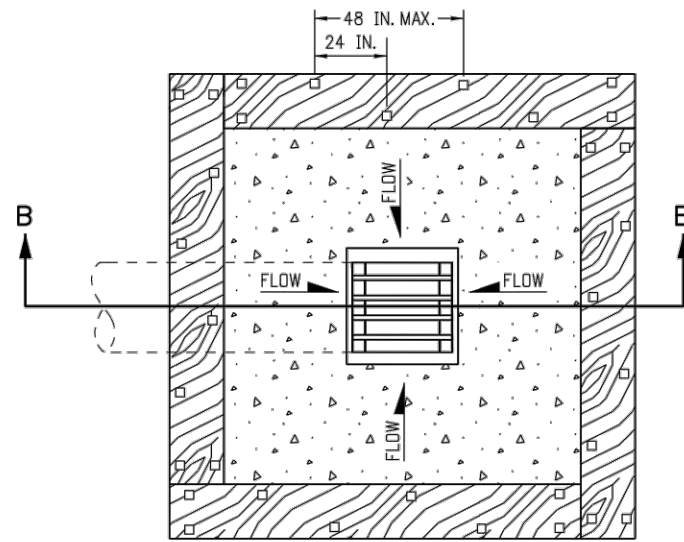
PROJECT NO.
 26-1144.00
 DRAWING NO.
C06
 SHEET 13 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 EROSION CONTROL DETAILS.DWG Friday, May 07, 2021 9:30 AM By: RICKS, RONALD

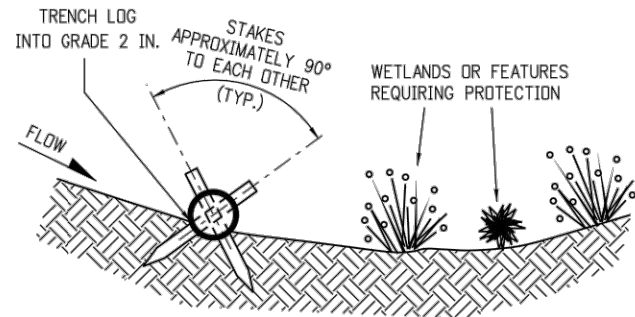


PLAN VIEW

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

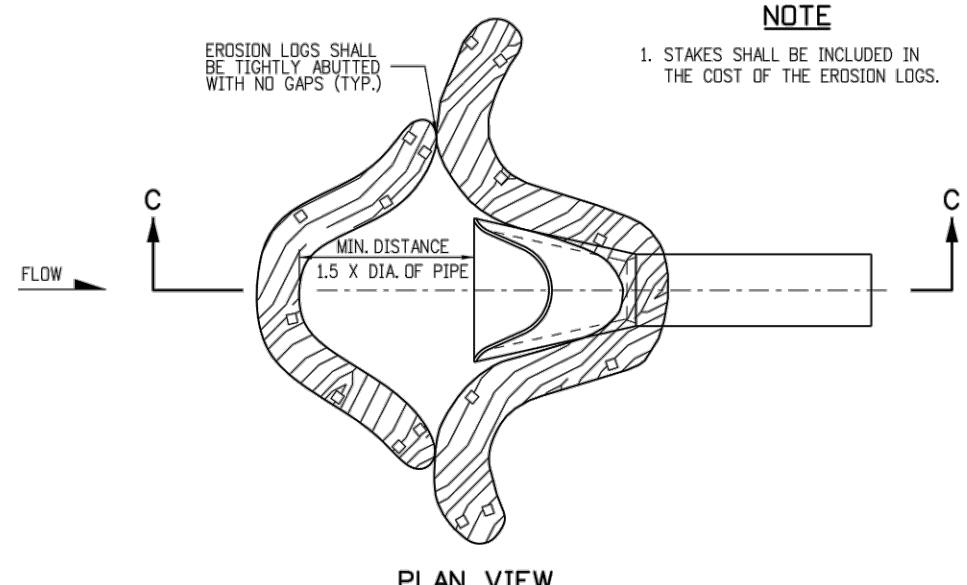


PLAN VIEW



SECTION A-A
TYPICAL STAKE INSTALLATION

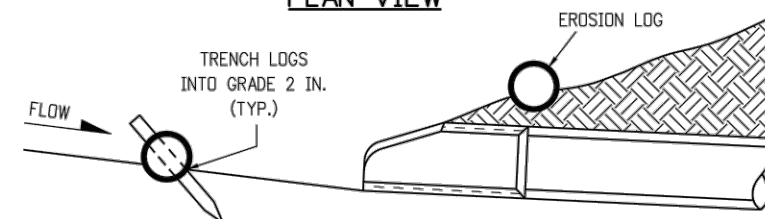
NOTE: THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2 INCHES ABOVE THE TOPS OF EROSION LOGS.



PLAN VIEW

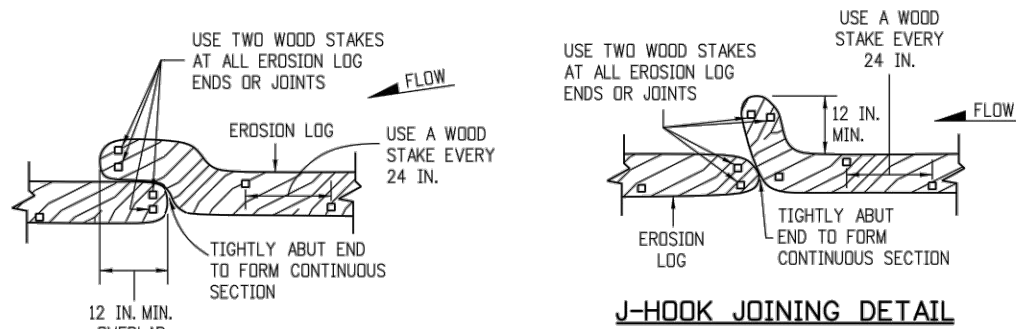
NOTE

1. STAKES SHALL BE INCLUDED IN THE COST OF THE EROSION LOGS.



SECTION C-C
EROSION LOG CULVERT INLET PROTECTION

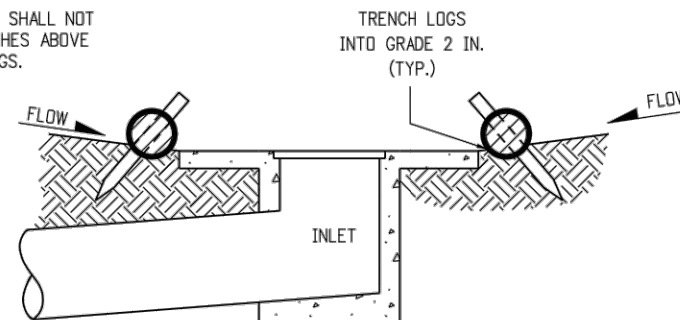
NOTE: TOP OF STAKE SHALL NOT EXTEND PAST TOP OF EROSION LOG MORE THAN 2 IN.



OVERLAP JOINING DETAIL

J-HOOK JOINING DETAIL

JOINING EROSION LOG APPLICATIONS

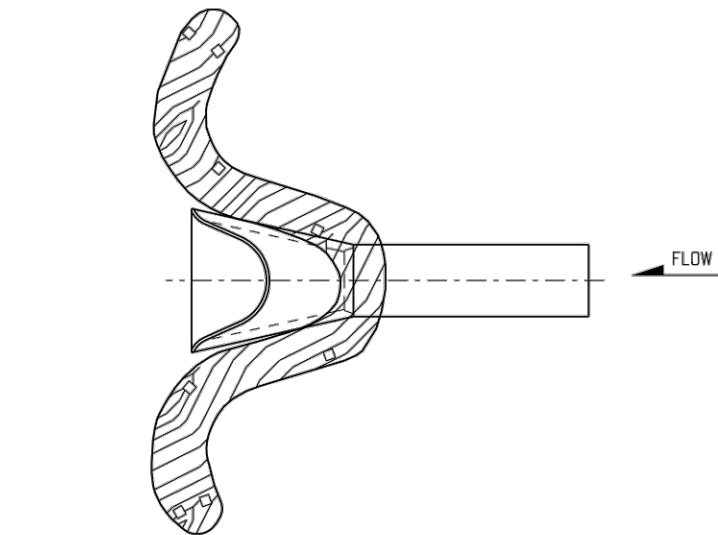


SECTION B-B

EROSION LOG FILTER AT DROP INLET

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

EROSION LOG APPLICATIONS



EROSION LOG CULVERT OUTLET PROTECTION

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

Sheet Revisions	
Date:	Comments
(R-X)	
(R-X)	
(R-X)	
(R-X)	

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TEMPORARY EROSION CONTROL
 Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-208-1
 Standard Sheet No. 2 of 11
 Project Sheet Number:



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AVRES

EROSION CONTROL DETAILS

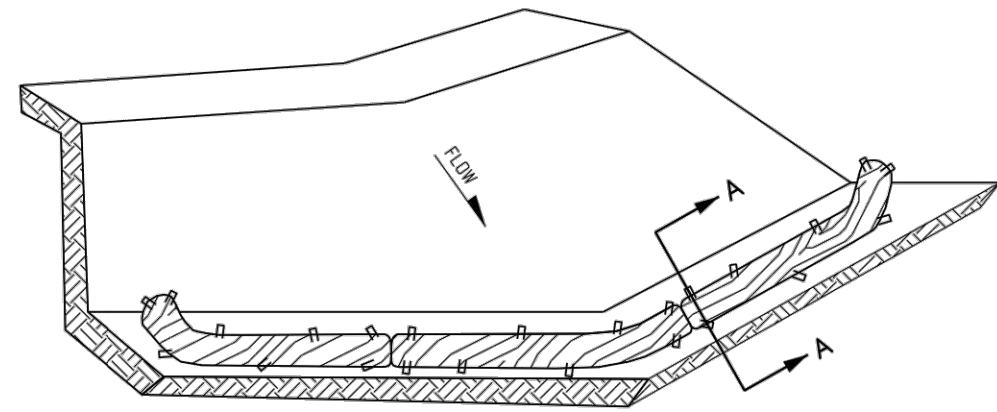
HOGCHUTE (AKA CARSON) RESERVOIR DAM REHABILITATION
 CITY OF GRAND JUNCTION
 MESA COUNTY, COLORADO

Date	Revisions

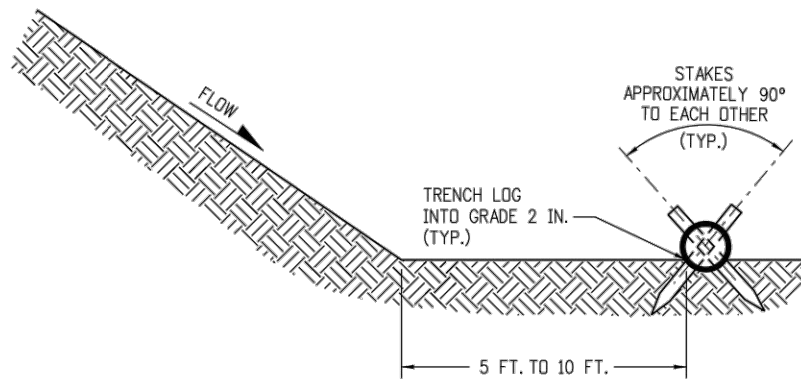
Project Mgr.	CTG	Designed By:	Drawn By:	Approved By:	Date:
		AJS	RBR	TMR	05/10/21

PROJECT NO. 26-1144.00
 DRAWING NO. C07
 SHEET 14 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 EROSION CONTROL DETAILS.DWG Friday, May 07, 2021 9:30 AM By: RICKS, RONALD

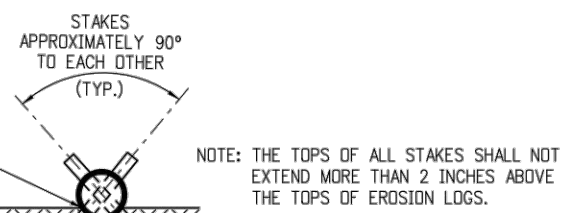


ISOMETRIC VIEW



SECTION A-A

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



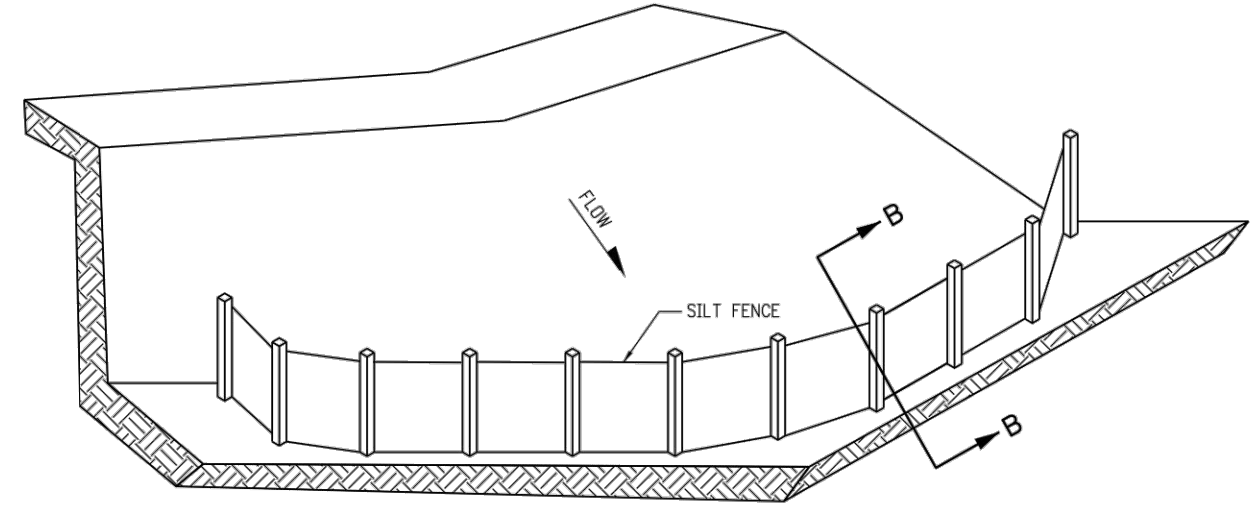
EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9 IN.)
208-00002	TYPE 1 (12 IN.)
208-00013	TYPE 1 (20 IN.)
208-00007	TYPE 2 (8 IN.)
208-00008	TYPE 2 (12 IN.)
208-00009	TYPE 2 (18 IN.)
208-00022	TYPE 3 (9 IN.)
208-00023	TYPE 3 (12 IN.)
208-00024	TYPE 3 (20 IN.)

EROSION LOG TOE OF SLOPE PROTECTION

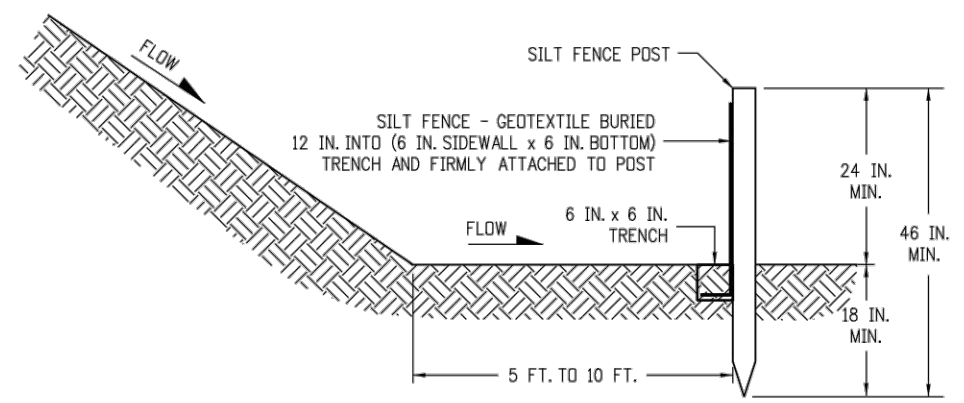
TOE OF SLOPE PROTECTION APPLICATIONS

NOTES

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



ISOMETRIC VIEW



SECTION B-B

SILT FENCE TOE OF SLOPE PROTECTION

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

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

Sheet Revisions	
Date:	Comments
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(R-X)	
(R-X)	
(R-X)	

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Project Development Branch **JBK**

TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-208-1

Standard Sheet No. 3 of 11

Project Sheet Number:



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EROSION CONTROL DETAILS

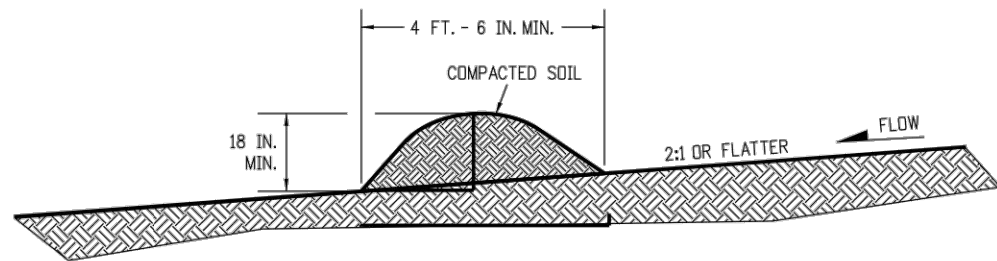
HOGCHUTE (AKA CARSON) RESERVOIR DAM REHABILITATION CITY OF GRAND JUNCTION MESA COUNTY, COLORADO

Date

Project Mgr.	CTG	Designed By:	Drawn By:	Approved By:	Date:
		AJS	RBR	TMR	05/10/21

PROJECT NO. 26-1144.00
 DRAWING NO. C08
 SHEET 15 OF 44

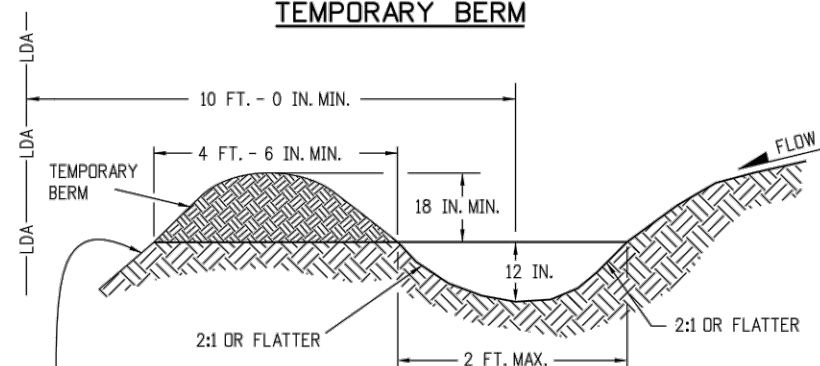
Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 EROSION CONTROL DETAILS.DWG Friday, May 07, 2021 9:30 AM By: RICKS, RONALD



NOTES:

1. BERMS SHALL HAVE A HEIGHT OF 18 INCHES, SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM BASE WIDTH OF 4 FT. - 6 IN.
2. BERMS SHALL BE USED TO INTERCEPT AND DIVERT DRAINAGE TO A DESIGNATED OUTLET.
3. BERMS SHALL NOT BE USED WHERE DRAINAGE AREA EXCEEDS 10 ACRES.
4. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.
5. TEMPORARY BERMS SHALL BE CONSTRUCTED OUT OF EMBANKMENT (SUBSOIL) AND IN NO CIRCUMSTANCE CONSTRUCTED OUT OF SALVAGED TOPSOIL.
6. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.

TEMPORARY BERM

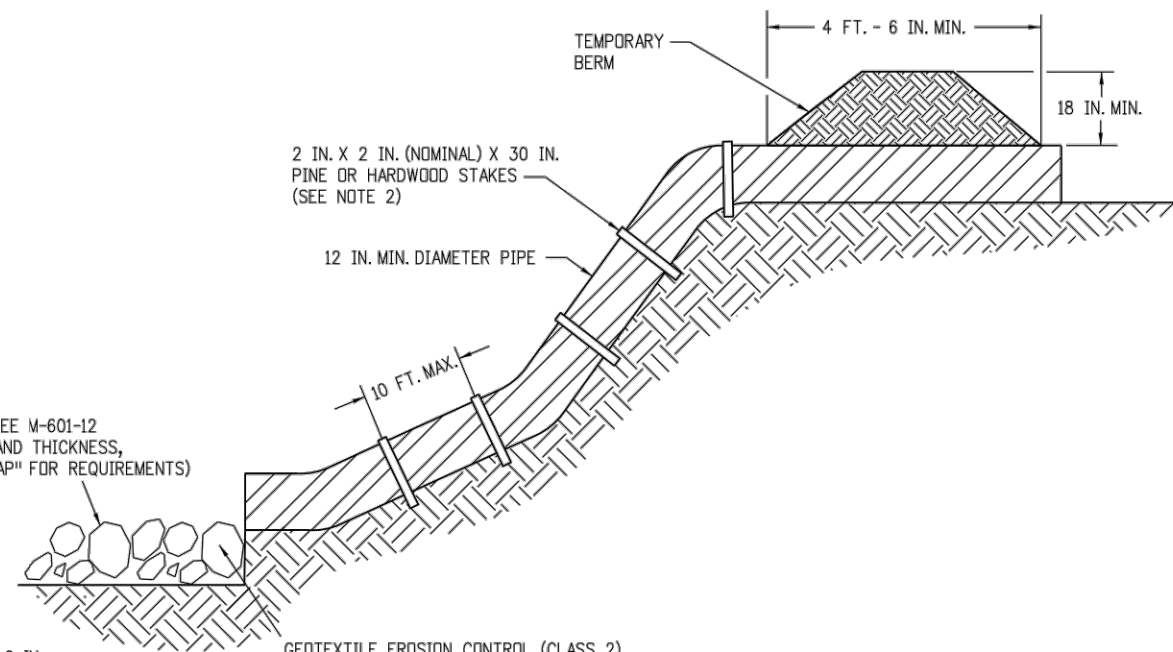


FOR BERMS TALLER THAN 2 FT.,
INSTALL TOE OF SLOPE CONTROL MEASURES.
SEE SHEET 3 OF 11 FOR DETAILS.

NOTES:

1. TEMPORARY DIVERSION DITCHES SHALL BE CONSTRUCTED ACROSS THE SLOPE TO INTERCEPT RUNOFF AND DIRECT IT TO A STABLE OUTLET OR SEDIMENT TRAP.
2. USE THE TEMPORARY DIVERSION DITCH IMMEDIATELY ABOVE A NEW CUT, FILL SLOPE, OR AROUND THE PERIMETER OF A DISTURBED AREA.
3. THE GRADIENT ALONG THE FLOW PATH SHALL HAVE A POSITIVE GRADE TO ASSURE DRAINAGE, BUT SHALL NOT BE SO STEEP AS TO RESULT IN EROSION DUE TO HIGH VELOCITY.
4. THE DIVERSION FLOWLINE SHALL ALWAYS BE LOCATED A MINIMUM 10 FEET FROM THE OUTSIDE LIMITS OF DISTURBED AREA BOUNDARY.
6. DIVERSION BERMS SHALL BE CONSTRUCTED OUT OF EMBANKMENT (SUBSOIL) AND IN NO CIRCUMSTANCE CONSTRUCTED OUT OF SALVAGED TOPSOIL.
5. THE PAY ITEM NUMBER FOR TEMPORARY DIVERSION (LF) IS 208-00301.

TEMPORARY DIVERSION



* RIPRAP OUTLET PROTECTION (SEE M-601-12 FOR MIN. HORIZONTAL LAYOUT AND THICKNESS, AND SPECIFICATION 506 "RIPRAP" FOR REQUIREMENTS)

* RIPRAP SIZE $D_{50} = 6$ IN. OR AS SHOWN ON THE PLANS.

GEOTEXTILE EROSION CONTROL (CLASS 2) SHALL ALWAYS BE REQUIRED

NOTES:

1. ANCHOR SIZE VARIES ACCORDING TO PIPE SIZE
2. TO SECURE THE PIPE, DRIVE STAKES INTO GROUND, THEN TIE A 12 GAUGE WIRE BETWEEN THEM ABOVE AND ACROSS THE PIPE'S WIDTH.
3. THE OUTLET SHALL BE ALIGNED WITH THE FLOW DIRECTION OF THE EXISTING GRADE. PERPENDICULAR DISCHARGE TO A CHANNEL SHALL NOT BE ACCEPTABLE.
4. THE GRADE AROUND THE INLET TO THE PIPE SHALL BE COMPACTED.
5. THE PAY ITEM NUMBER FOR TEMPORARY SLOPE DRAINS (LF) IS 208-00060.

TEMPORARY SLOPE DRAINS

GRADING APPLICATIONS

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

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Date:	Comments
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(R-X)	
(R-X)	
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TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-208-1
Standard Sheet No. 7 of 11

Project Sheet Number:



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EROSION CONTROL DETAILS

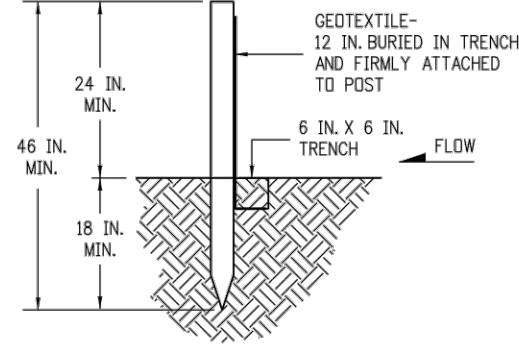
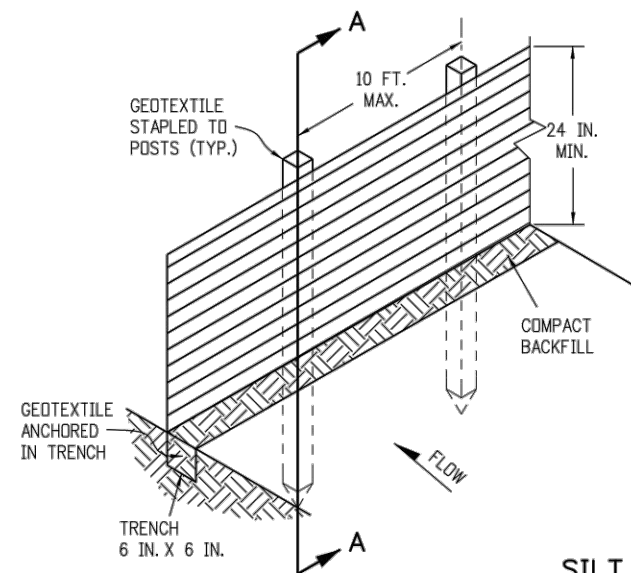
HOGCHUTE (AKA CARSON) RESERVOIR DAM REHABILITATION CITY OF GRAND JUNCTION MESA COUNTY, COLORADO

Revisions	Date

Project Mgr.	CTG	Designed By:	Drawn By:	Approved By:	Date:
		AJS	RBR	TMR	05/10/21

PROJECT NO. 26-1144.00
 DRAWING NO. C09
 SHEET 16 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 EROSION CONTROL DETAILS.DWG Friday, May 07, 2021 9:30 AM By: RICKS, RONALD

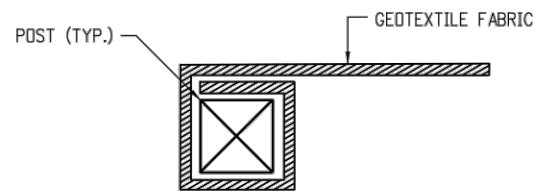


SECTION A-A

SILT FENCE

NOTES:

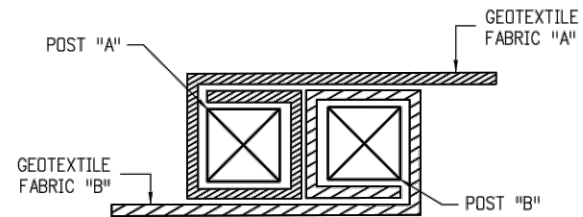
1. GEOTEXTILE SHALL BE ATTACHED TO WOOD POSTS WITH THREE OR MORE STAPLES PER POST. STAPLES SHALL BE HEAVY DUTY WIRE AND AT LEAST 1 INCH LONG.
2. WOOD POST SHALL BE 1 IN. X 1 IN. NOMINAL.
3. THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.
4. THE SILT FENCE SHALL BE PLACED ON THE CONTOUR (AT THE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



END SECTION DETAIL (PLAN VIEW)

NOTE:

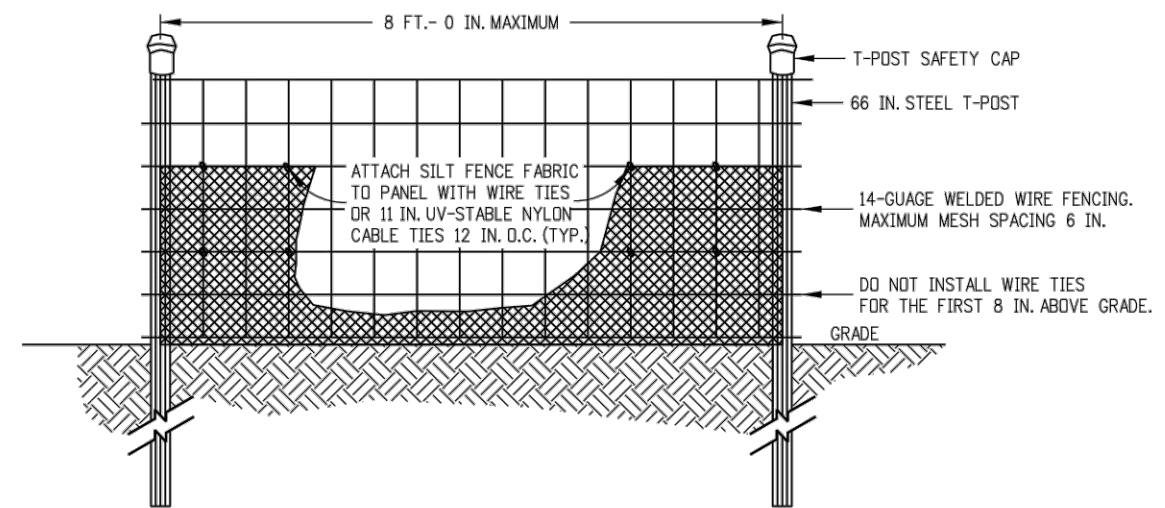
1. THE END OF THE SILT FENCE FABRIC SHALL BE WRAPPED APPROX. 6 INCHES AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.



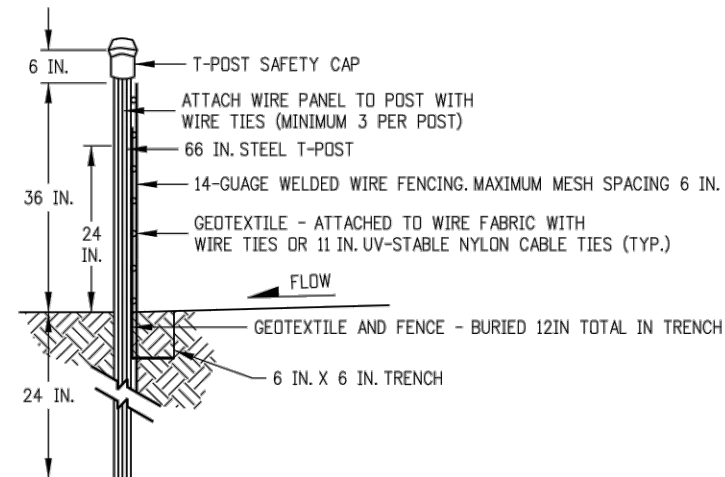
JOINING SECTION DETAIL (PLAN VIEW)

NOTES:

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



ELEVATION VIEW



SIDE VIEW

NOTES:

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

SILT FENCE (REINFORCED)

SILT FENCE APPLICATIONS

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

Sheet Revisions	
Date:	Comments

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

Project Development Branch **JBK**

TEMPORARY EROSION CONTROL

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO. M-208-1

Standard Sheet No. 8 of 11

Project Sheet Number: _____



ONE INCH - IF NOT, SCALE ACCORDINGLY

3665 JFK Parkway
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 (970) 223-5556

AVRES

EROSION CONTROL DETAILS

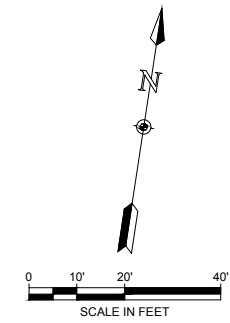
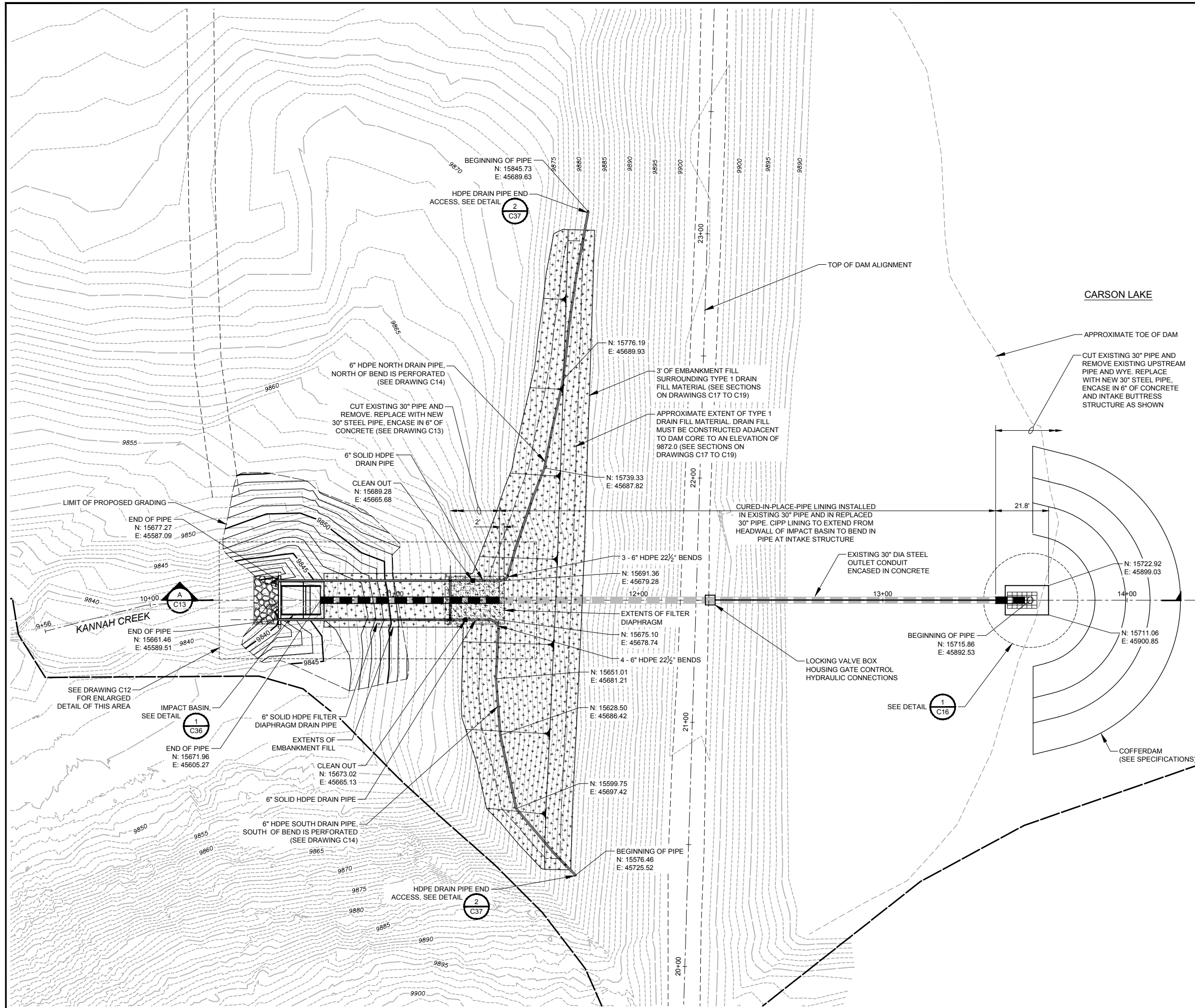
HOGCHUTE (AKA CARSON) RESERVOIR DAM REHABILITATION
 CITY OF GRAND JUNCTION
 MESA COUNTY, COLORADO

Date	Revisions

Project Mgr.	CTG	Designed By:	AUS	Drawn By:	RBR	Approved By:	TMR	Date:
								05/10/21

PROJECT NO. 26-1144.00
 DRAWING NO. C10
 SHEET 17 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DAM PLAN.DWG Monday, May 10, 2021 3:56 PM By: RICKS, RONALD



ONE INCH - IF NOT, SCALE ACCORDINGLY

AVRES
 3665 JFK Parkway
 Building 2, Suite 100
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 (970) 223-5556

DAM PROPOSED CONDITIONS AND COFFERDAM

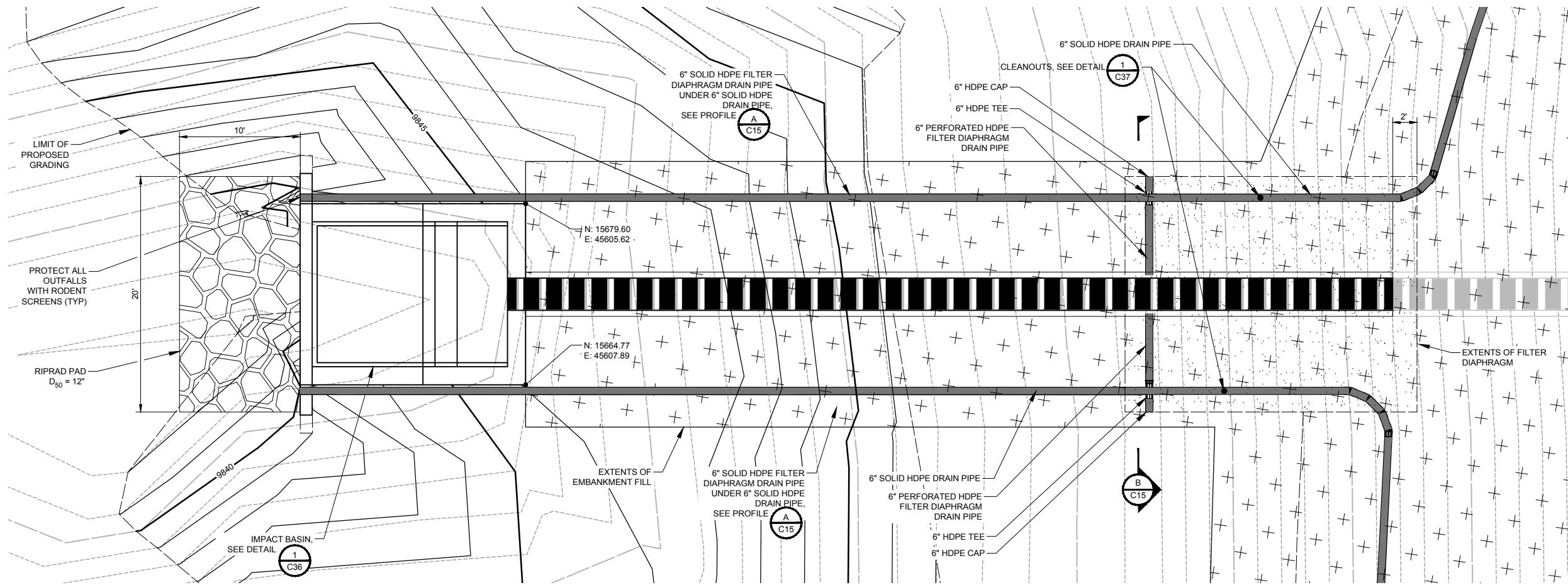
HOGCHUTE (AKA CARSON) RESERVOIR DAM REHABILITATION CITY OF GRAND JUNCTION MESA COUNTY, COLORADO

Revisions	Date

Project Mgr.:	CTG
Designed By:	AJS
Drawn By:	RBR
Approved By:	TMR
Date:	05/10/21

PROJECT NO. 26-1144.00
 DRAWING NO. C11
 SHEET 18 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DAM PLAN ENLARGED.DWG Monday, May 10, 2021 3:37 PM By: RICKS, RONALD



FILTER DIAPHRAGM AND IMPACT BASIN AREA ENLARGED PLAN

SCALE: AS SHOWN



ONE INCH - IF NOT, SCALE ACCORDINGLY

3665 JFK Parkway
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 Fort Collins, CO 80525
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**DAM PROPOSED CONDITIONS
 ENLARGED PLAN**

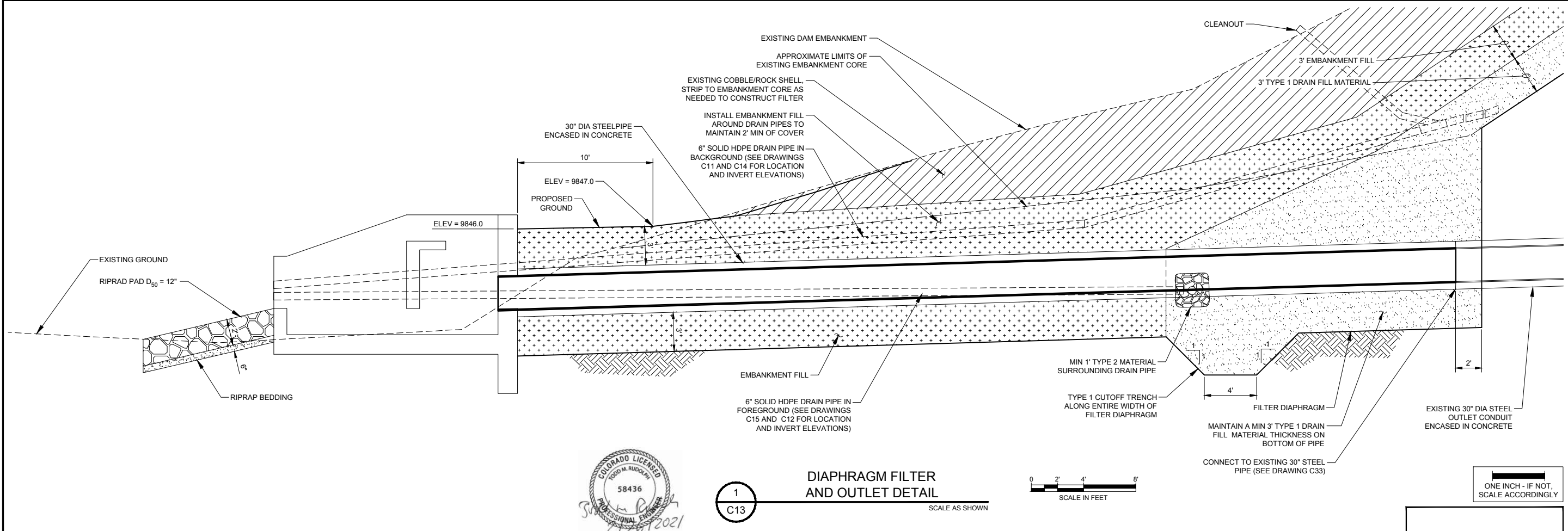
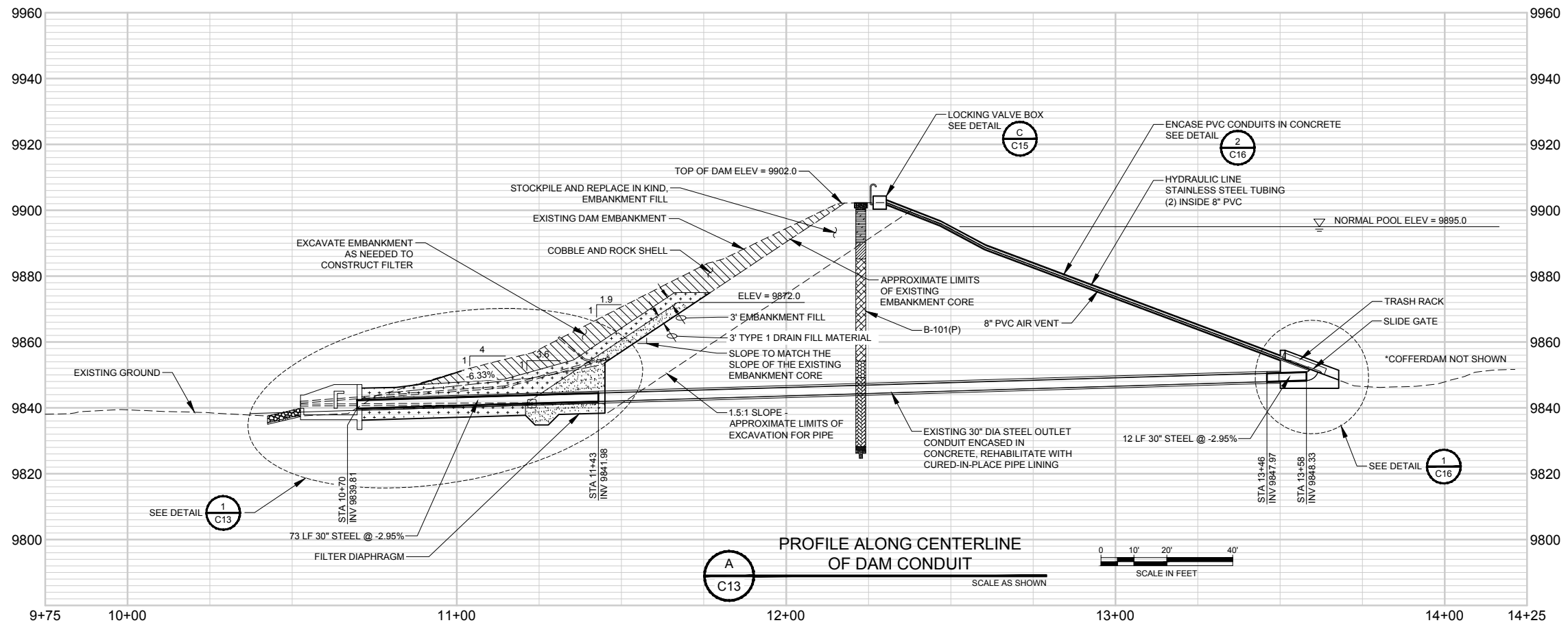
**HOGCHUTE (AKA CARSON)
 RESERVOIR DAM REHABILITATION
 CITY OF GRAND JUNCTION
 MESA COUNTY, COLORADO**

Revisions	Date

Project Mgr. CTG	
Designed By: AJS	
Drawn By: RBR	
Approved By: TMR	
Date: 05/10/21	

PROJECT NO.
26-1144.00
 DRAWING NO.
C12
 SHEET 19 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-11444.00 DAM PROFILE AND DETAIL.DWG Monday, May 10, 2021 4:30 PM By: RICKS, RONALD



1
C13

DIAPHRAGM FILTER AND OUTLET DETAIL



ONE INCH - IF NOT, SCALE ACCORDINGLY



DAM PROFILE AND DETAIL

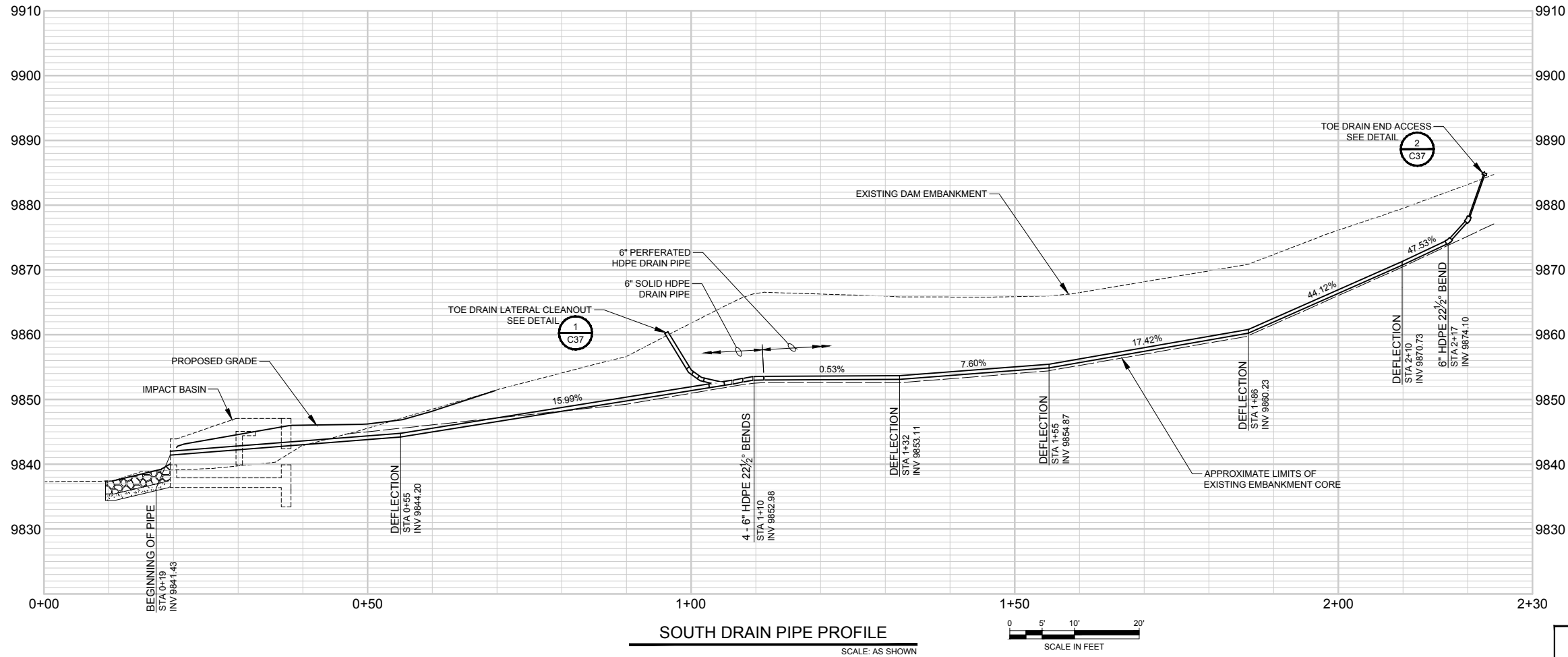
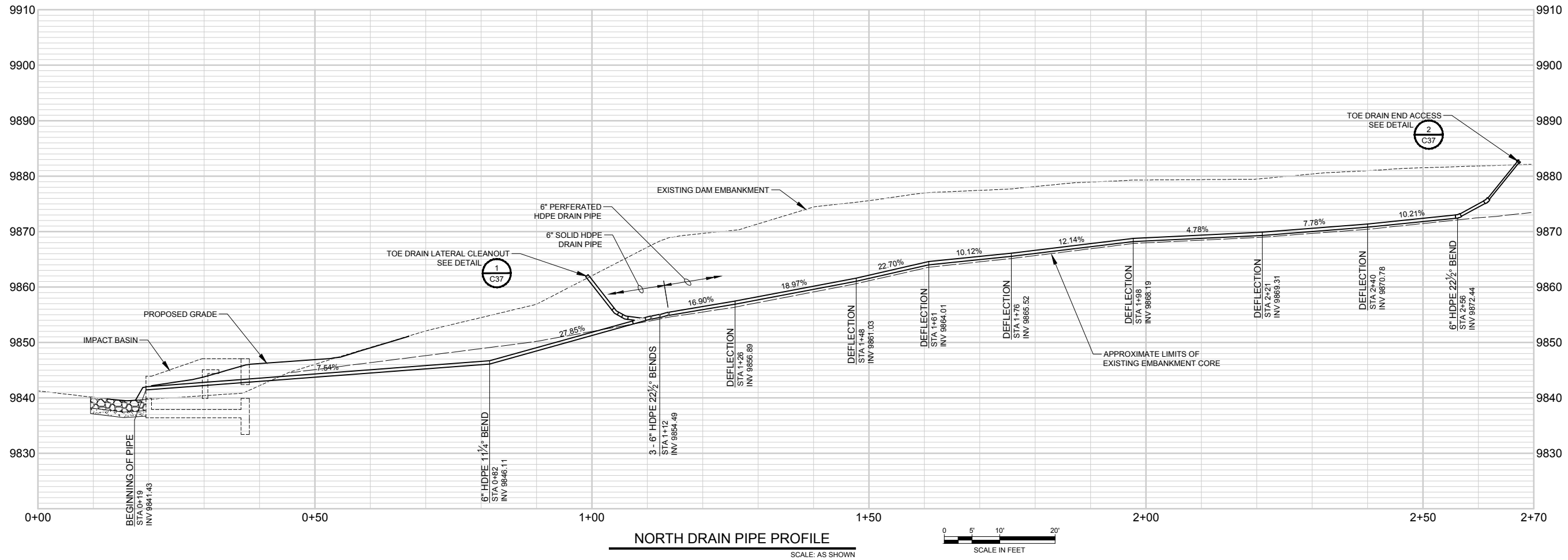
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date

Project Mgr.:	CTG
Designed By:	AJS
Drawn By:	RBR
Approved By:	TMR
Date:	05/10/21

PROJECT NO. 26-1144.00
DRAWING NO. C13
SHEET 20 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DRAIN PIPE PROFILES.DWG Saturday, May 08, 2021 1:41 PM By: RICKS, RONALD



ONE INCH - IF NOT, SCALE ACCORDINGLY



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DAM DRAIN PIPE PROFILES

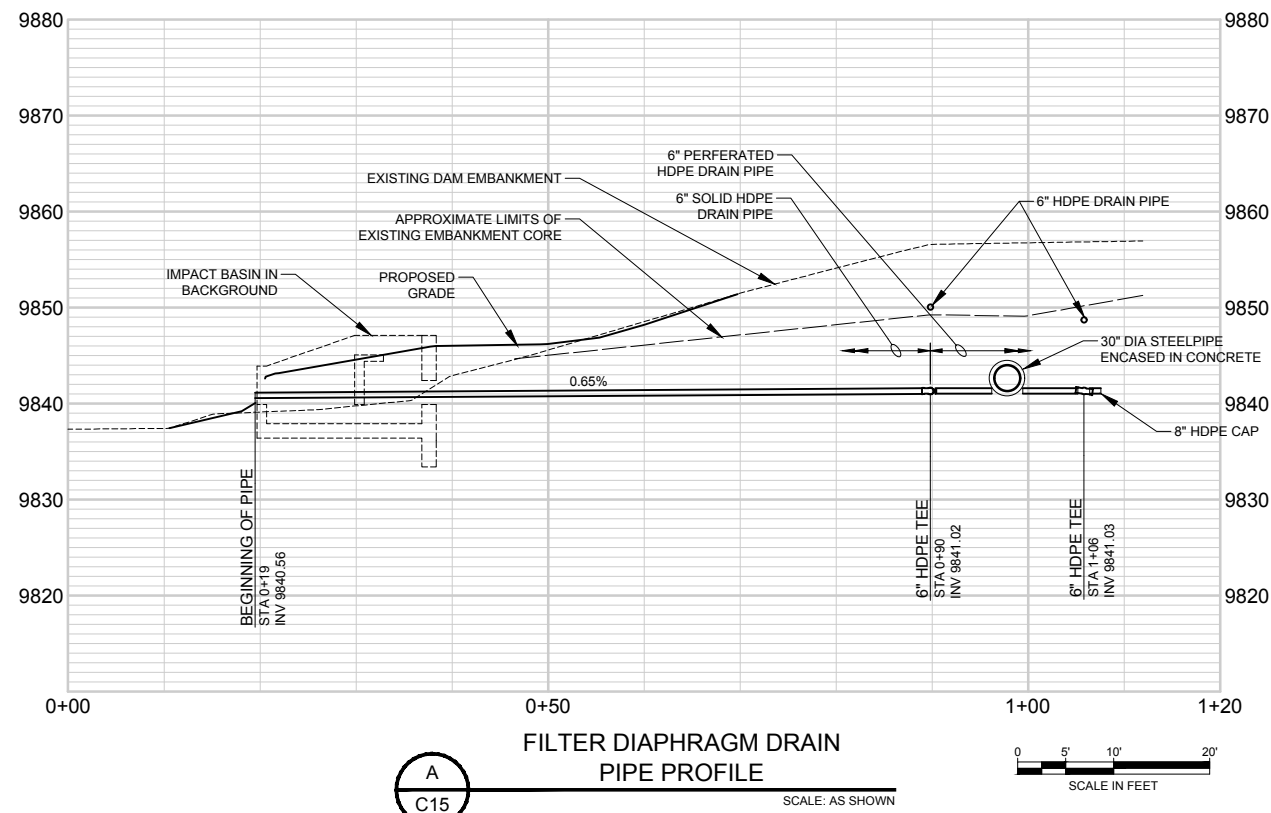
**HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO**

Revisions	Date

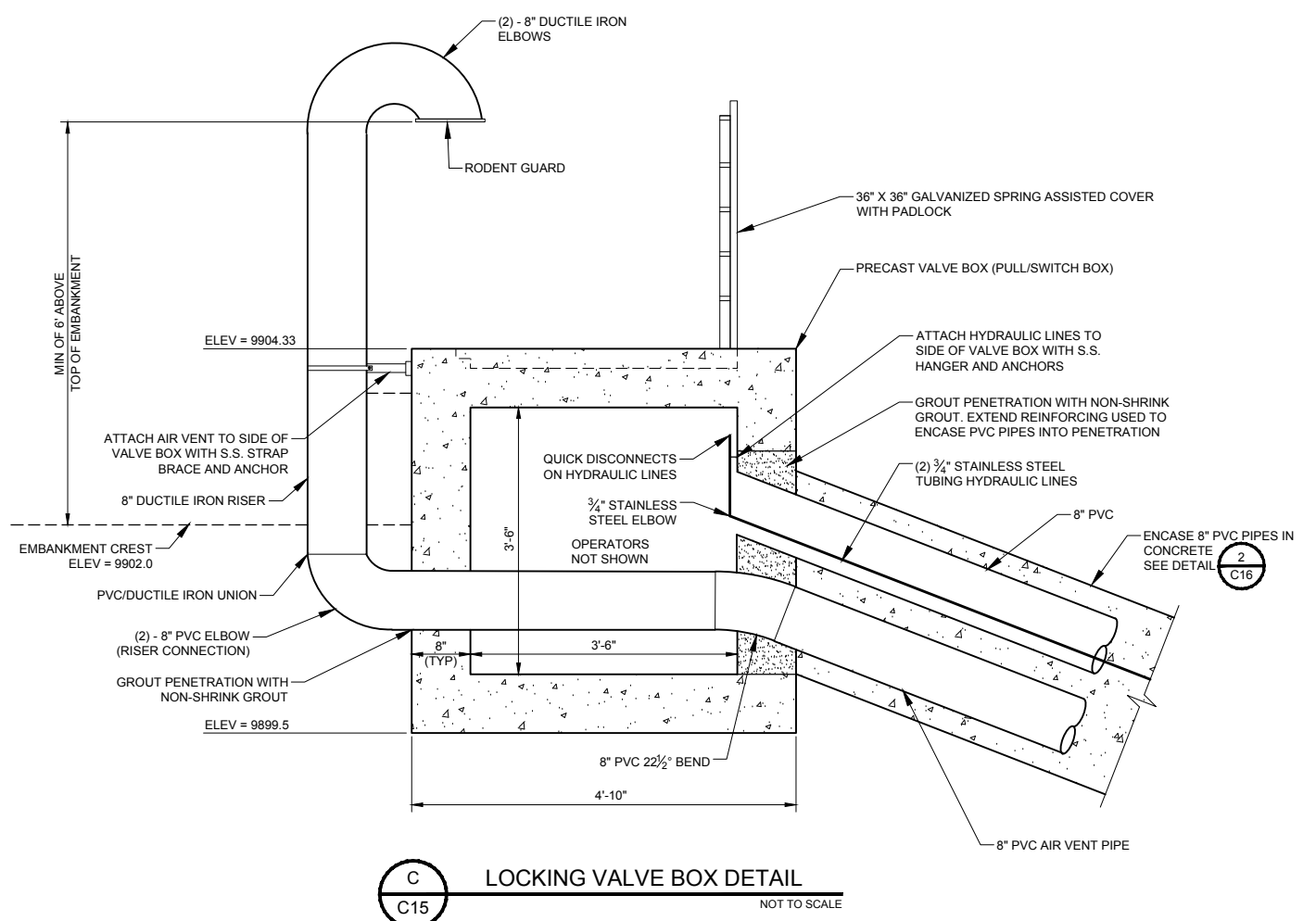
Project Mgr. CTG	Designed By: AJS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO. 26-1144.00
DRAWING NO. C14

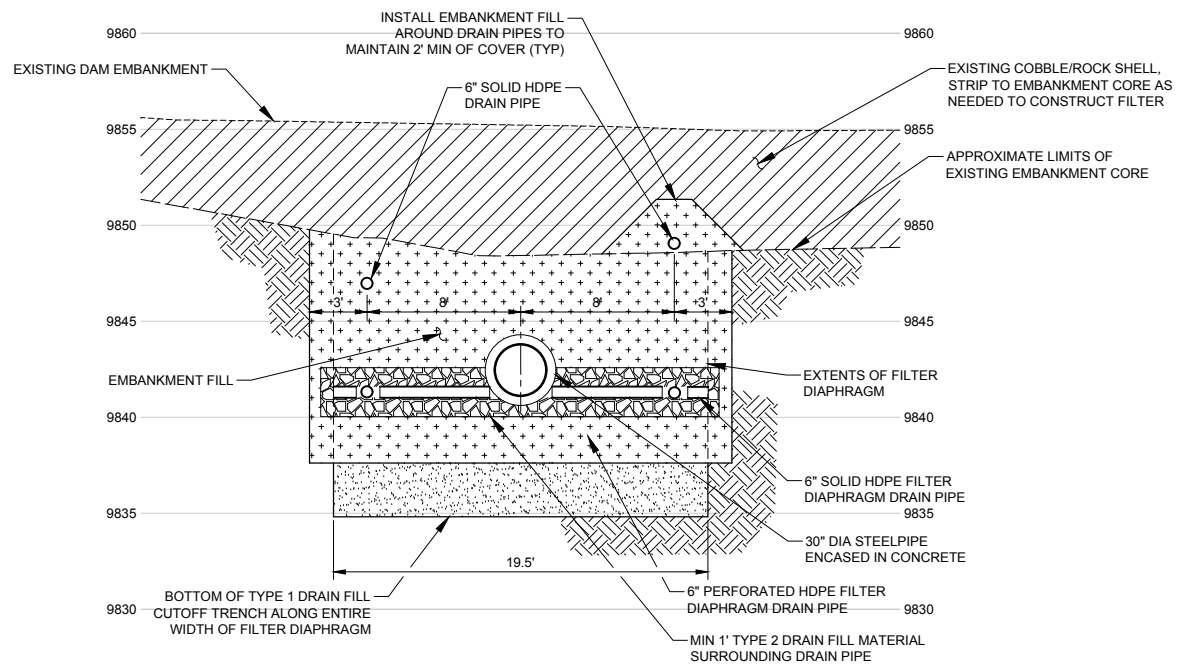
Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DAM DETAILS 1 OF 2.DWG Monday, May 10, 2021 3:22 PM By: RICKS, RONALD



A
C15
FILTER DIAPHRAGM DRAIN PIPE PROFILE
SCALE: AS SHOWN



C
C15
LOCKING VALVE BOX DETAIL
NOT TO SCALE



B
C15
SECTION
SCALE: AS SHOWN



ONE INCH - IF NOT, SCALE ACCORDINGLY

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Fort Collins, CO 80525
(970) 223-5556

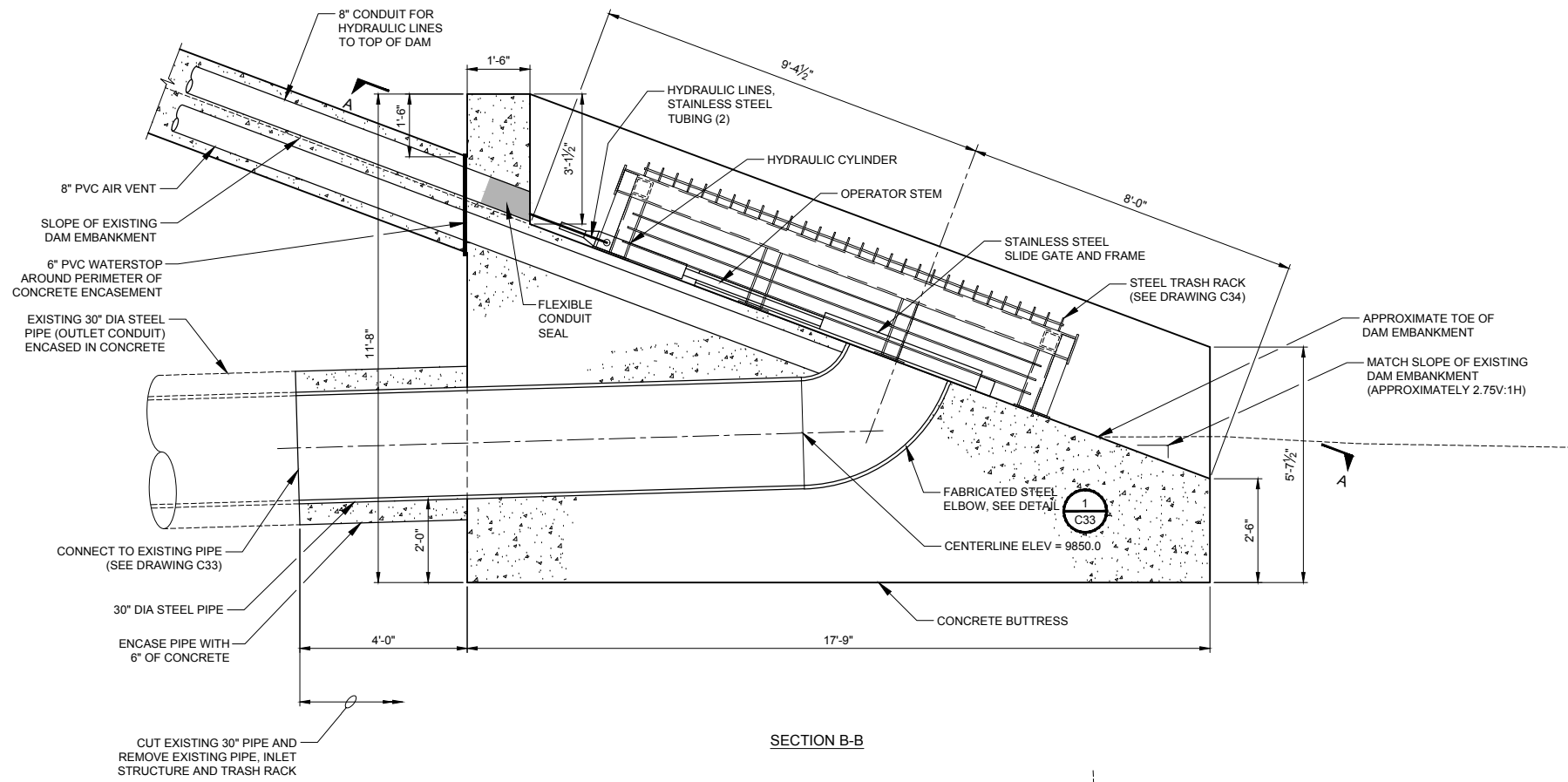
DAM DETAILS 1 OF 2

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Date	Revisions	Project Mgr.	CTG	Designed By	AUS	Drawn By	RBR	Approved By	TMR	Date

PROJECT NO. 26-1144.00
DRAWING NO. C15
SHEET 22 OF 44

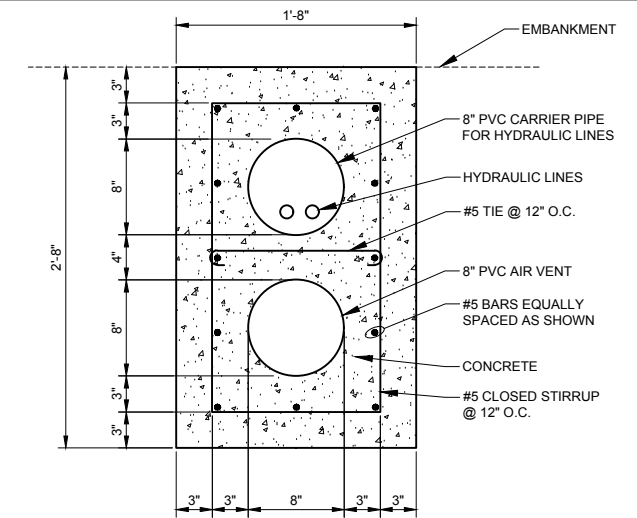
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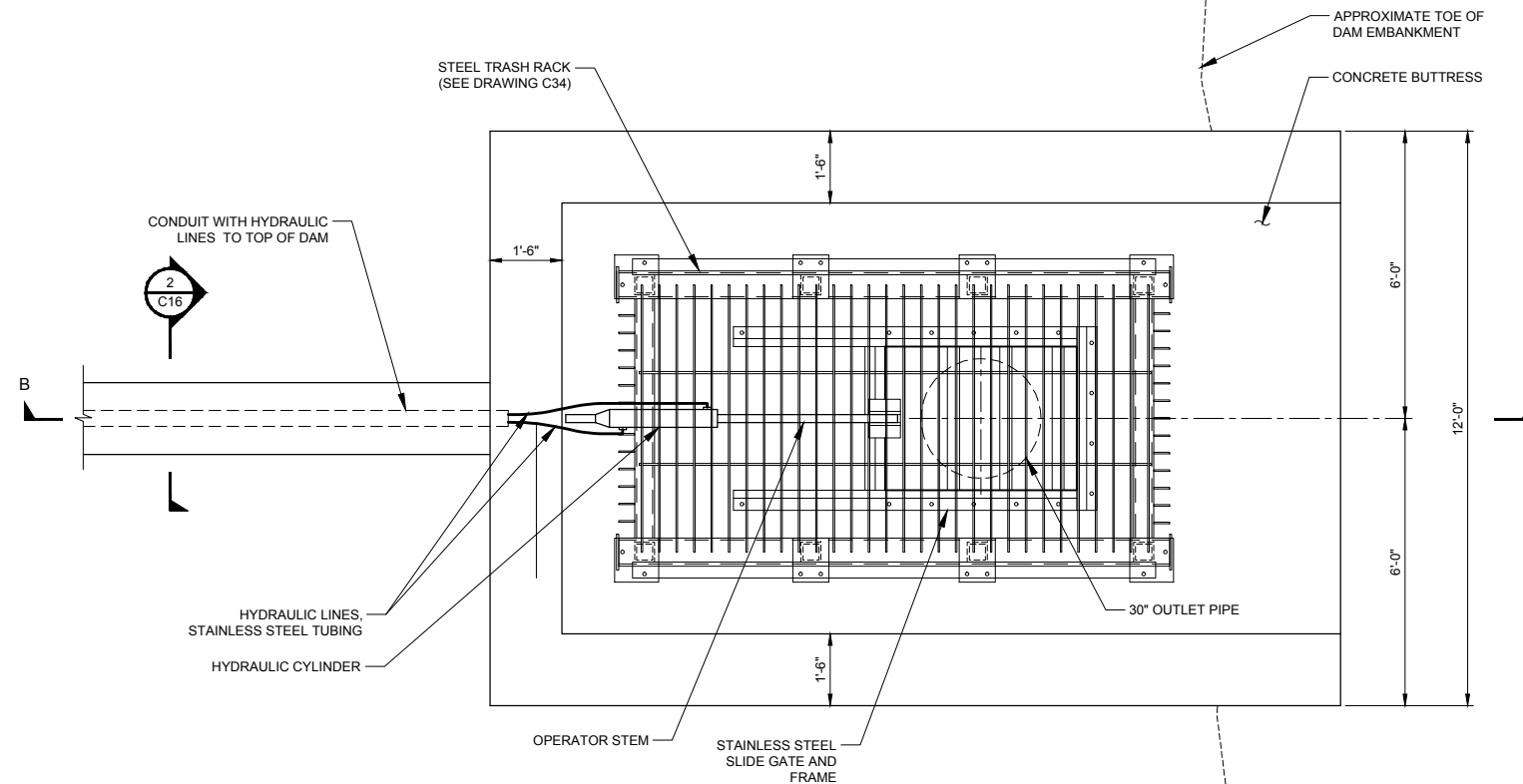
SECTION B-B

NOTES:

1. PROVIDE CONTINUOUS PVC WATERSTOPS AT ALL JOINTS.



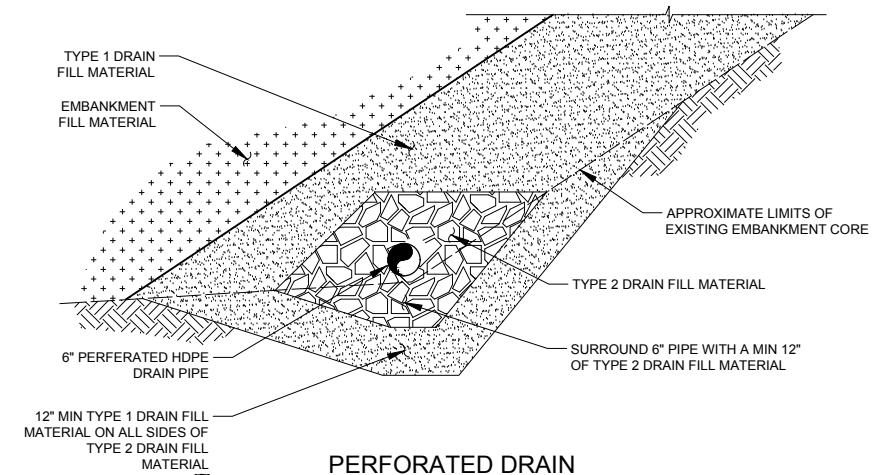
2 CONDUIT ENCASEMENT
NOT TO SCALE



1 CONCRETE BUTTRESS DETAIL
SCALE: 1/2"=1'-0"

NOTES:

1. CONCRETE REINFORCEMENT NOT SHOWN (SEE DRAWING C32).



3 PERFORATED DRAIN PIPE TRENCH DETAIL
SCALE: 1"=2'



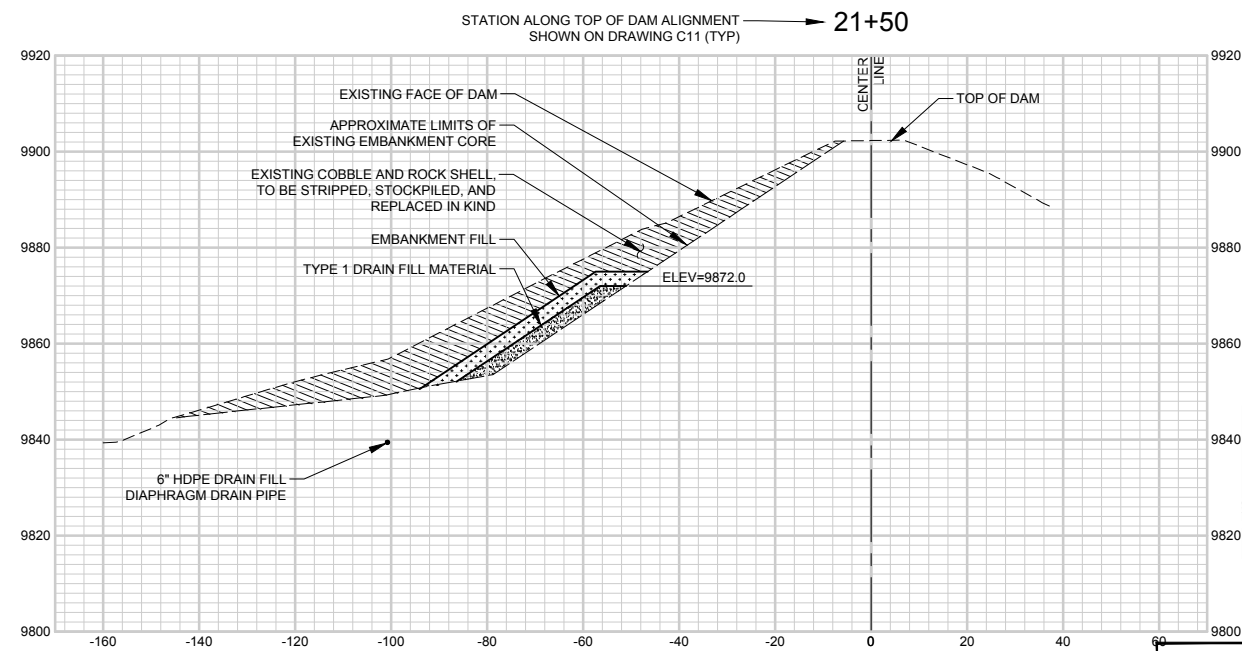
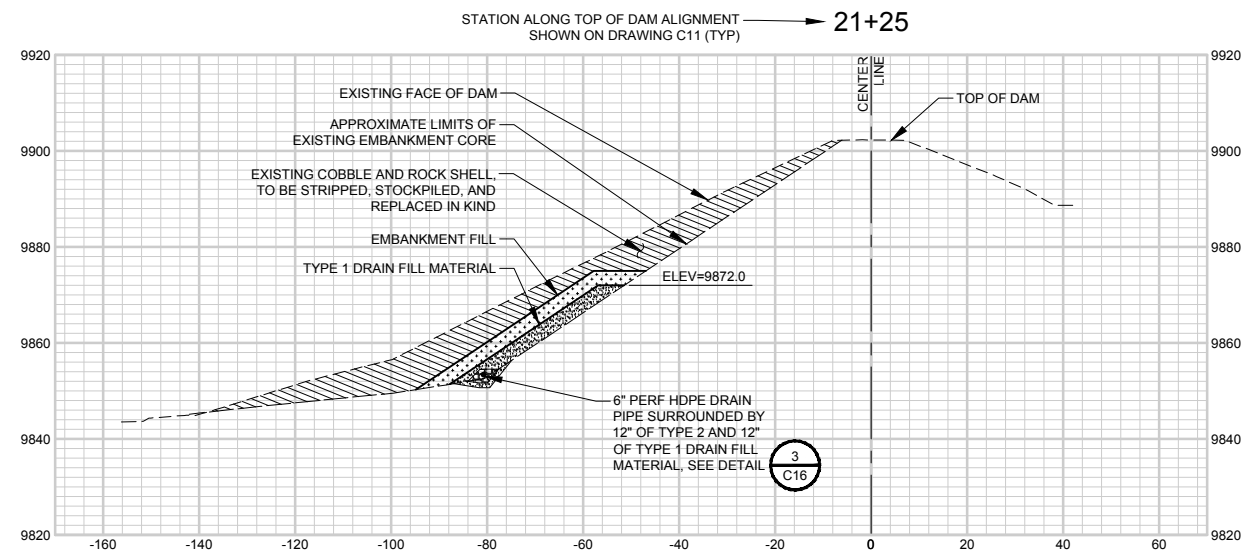
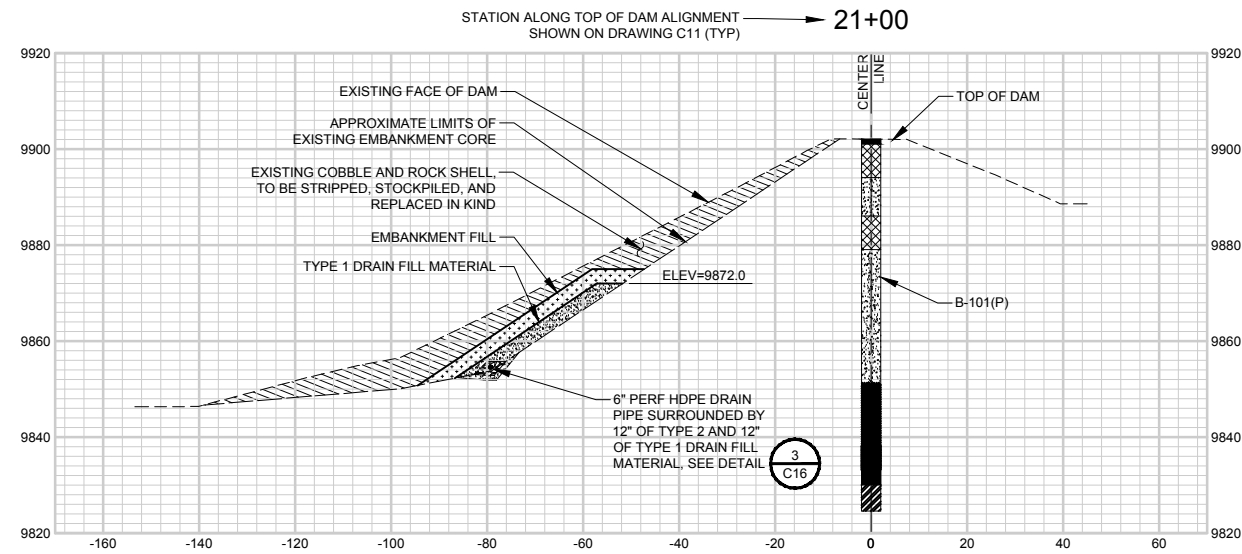
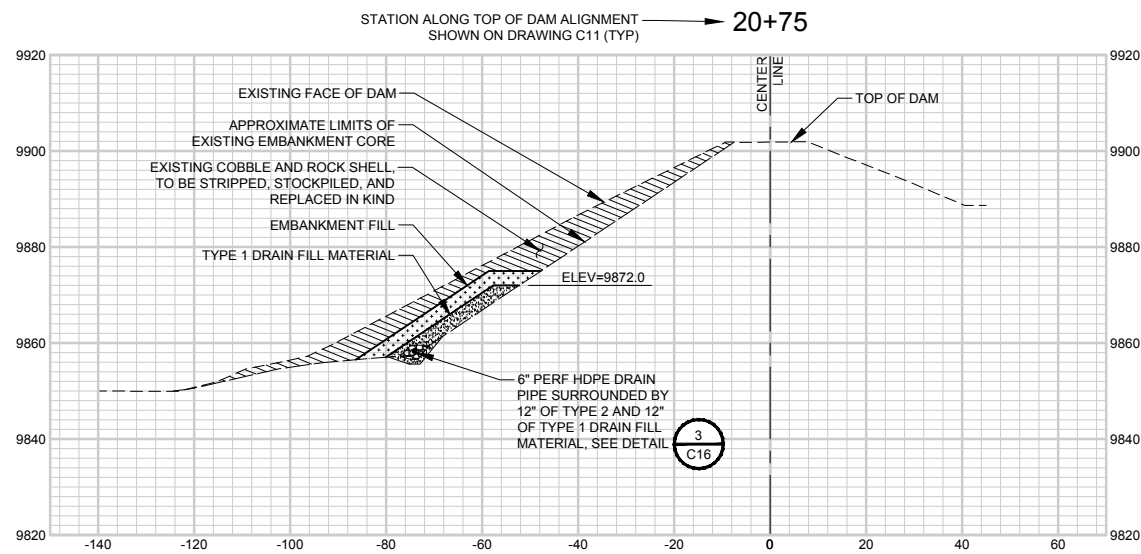
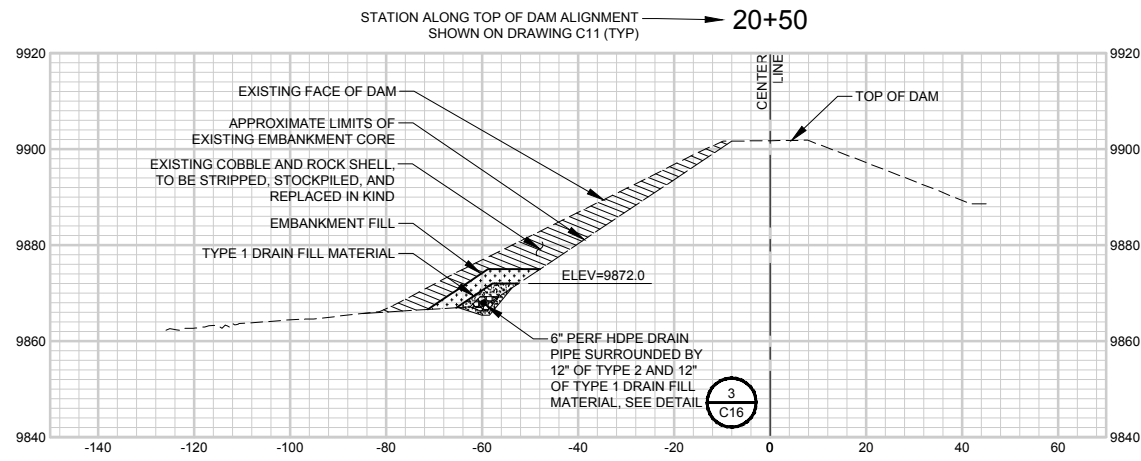
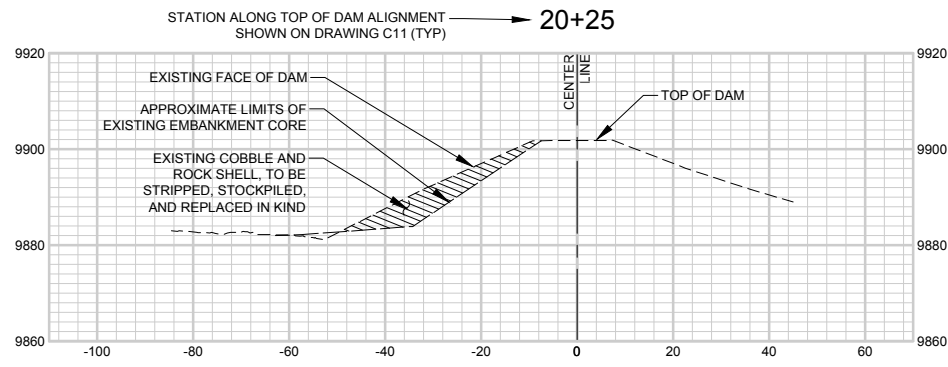
ONE INCH - IF NOT, SCALE ACCORDINGLY

Date

Project Mgr.	CTG
Designed By: AJS	
Drawn By: RBR	
Approved By: TMR	
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DAM SECTIONS 3 OF 3.DWG Friday, May 07, 2021 1:06 PM By: RICKS, RONALD



ONE INCH - IF NOT, SCALE ACCORDINGLY

3665 JFK Parkway
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DAM SECTIONS 1 OF 3

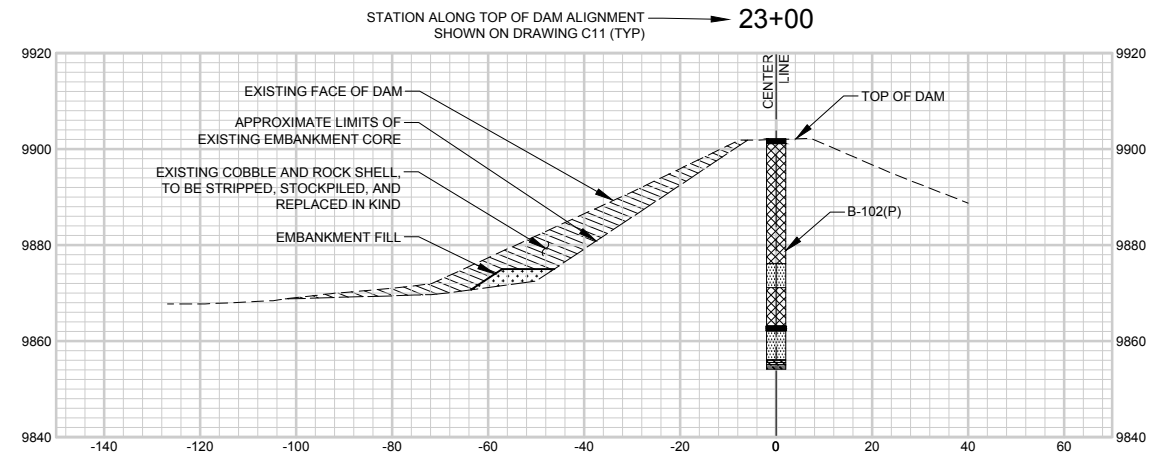
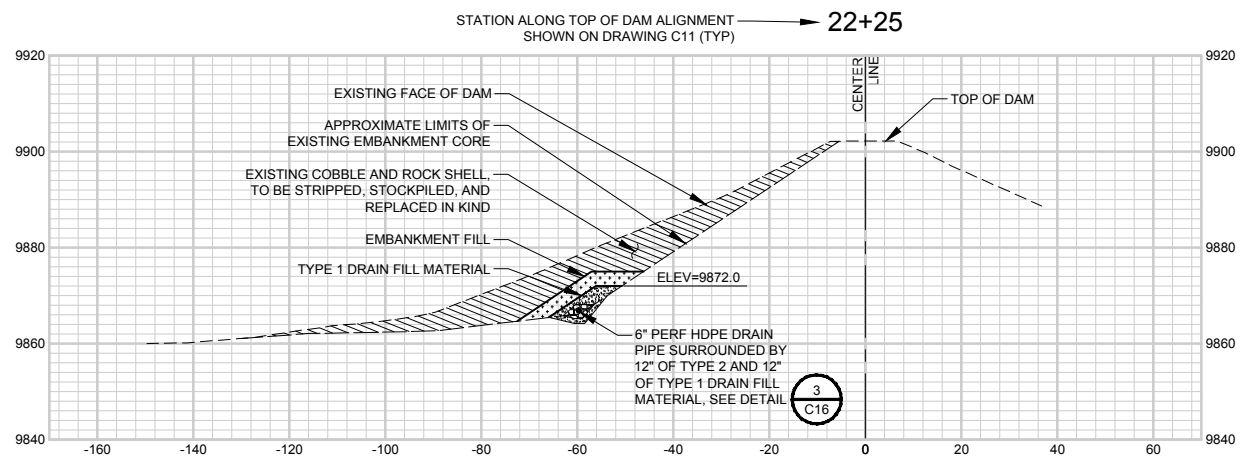
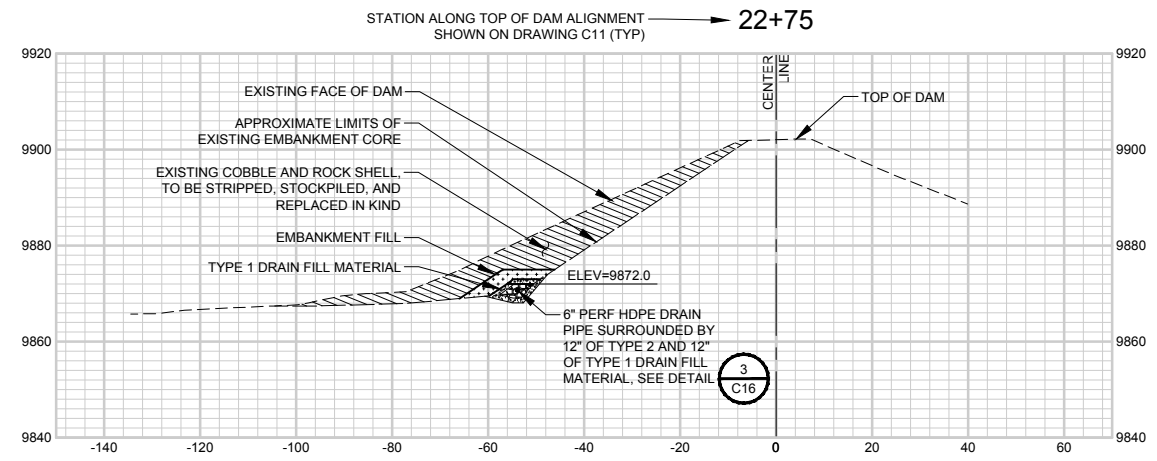
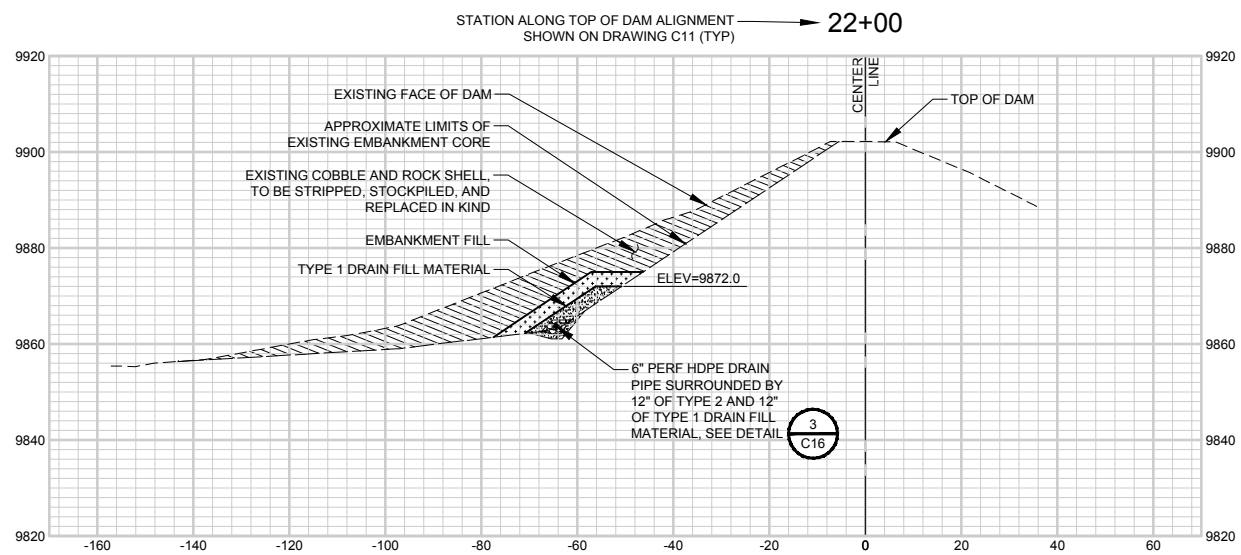
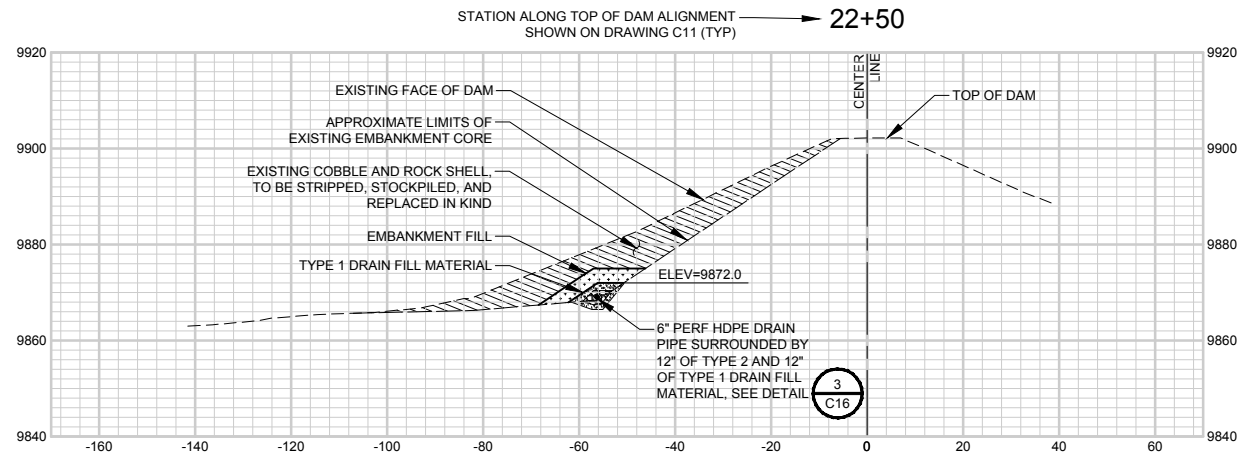
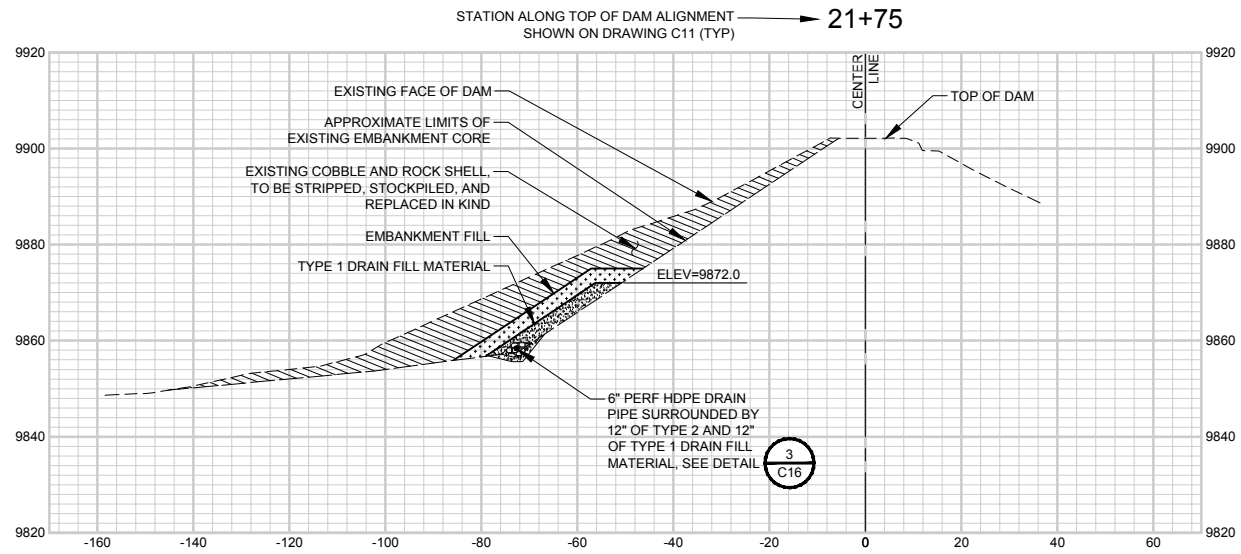
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Date

Project Mgr. CTG	Designed By: AJS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO. 26-1144.00
DRAWING NO. C17
SHEET 24 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DAM SECTIONS 3 OF 3.DWG Friday, May 07, 2021 1:06 PM By: RICKS, RONALD



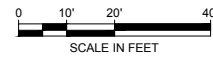
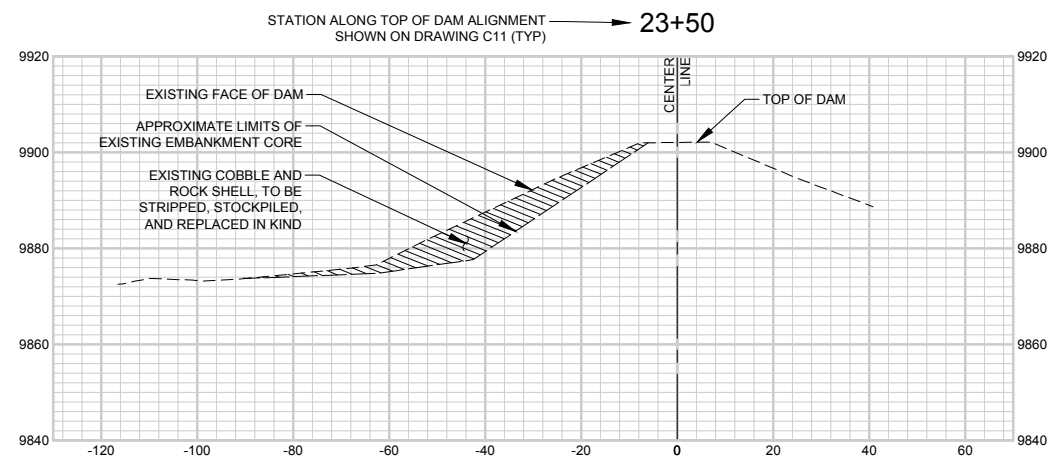
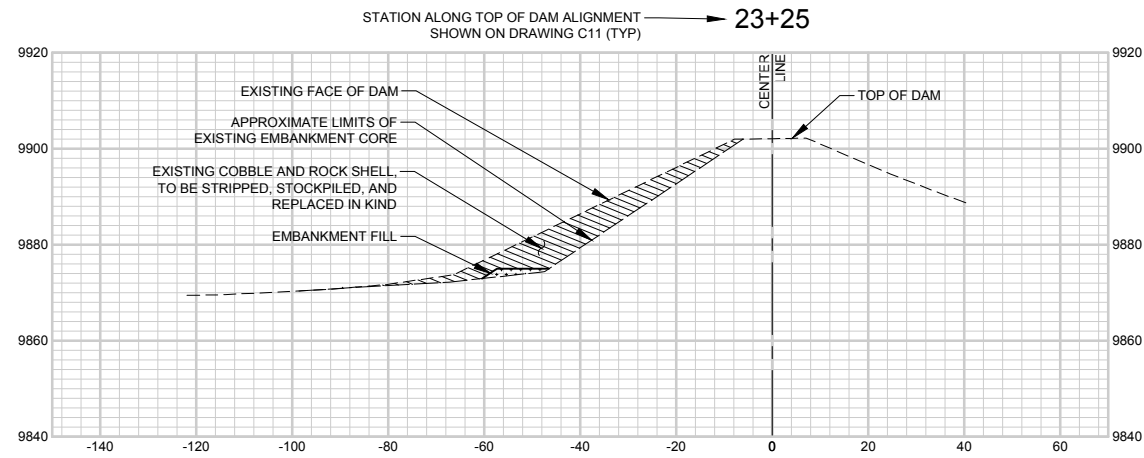
ONE INCH - IF NOT, SCALE ACCORDINGLY



Date	
Revisions	

Project Mgr. CTG	Designed By: AUS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM\MAINDWGS 2020\SHEETS\26-1144.00 DAM SECTIONS 3 OF 3.DWG Friday, May 07, 2021 1:06 PM By: RICKS, RONALD



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DAM SECTIONS 3 OF 3

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

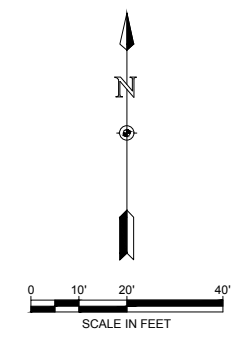
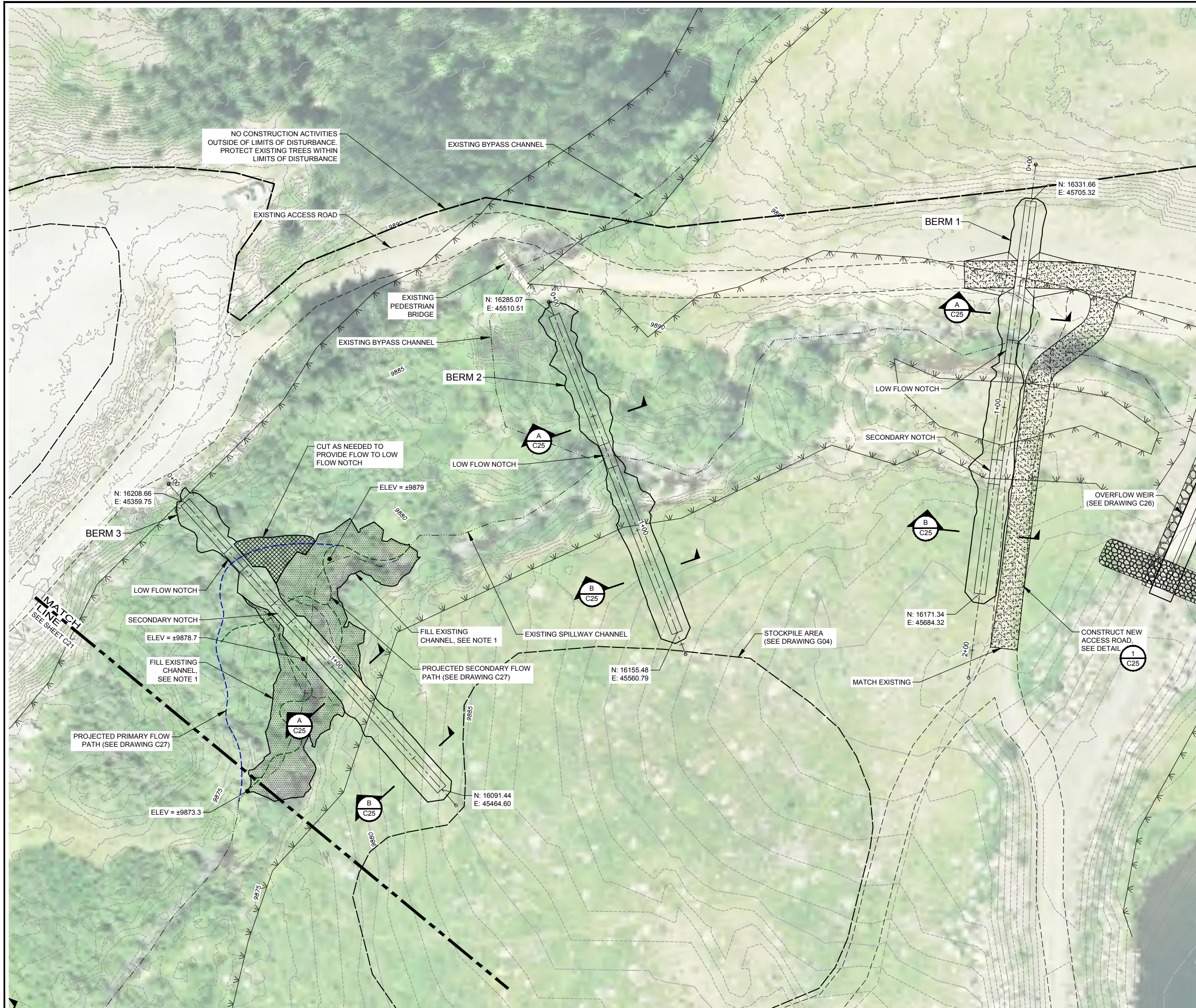
Revisions	Date

Project Mgr. CTG	Designed By: AJS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.

C19

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 SPILLWAY PLAN 3 OF 3.DWG Thursday, May 06, 2021 6:14 PM By: RICKS, RONALD



- NOTES:**
1. FILL N-VEGETATED AREA OF EXISTING CHANNEL APPROXIMATELY TO THE LIMITS AND ELEVATIONS SHOWN. FILL UP TO ADJACENT VEGETATED FLOOD PLAN. FILL ELEVATION ADJACENT TO THE BERM SHOULD BE A MINIMUM 1' BELOW TOP OF BERM ELEVATION.
 2. FILL ELEVATIONS SHOWN ARE APPROXIMATE AND MAY BE FIELD ADJUSTED DURING CONSTRUCTION.
 3. FILL MATERIAL MAY INCLUDE COBBLE AND BOULDERS, BUT SHALL HAVE A MINIMUM OF 18" SOIL COVER.
 4. WATTLES TO BE PLACED ON CHANNEL FILL AREAS. SEE DRAWING C27 FOR DETAILS.



ONE INCH - IF NOT, SCALE ACCORDINGLY

2-26-2021

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SPILLWAY PLAN 1 OF 3

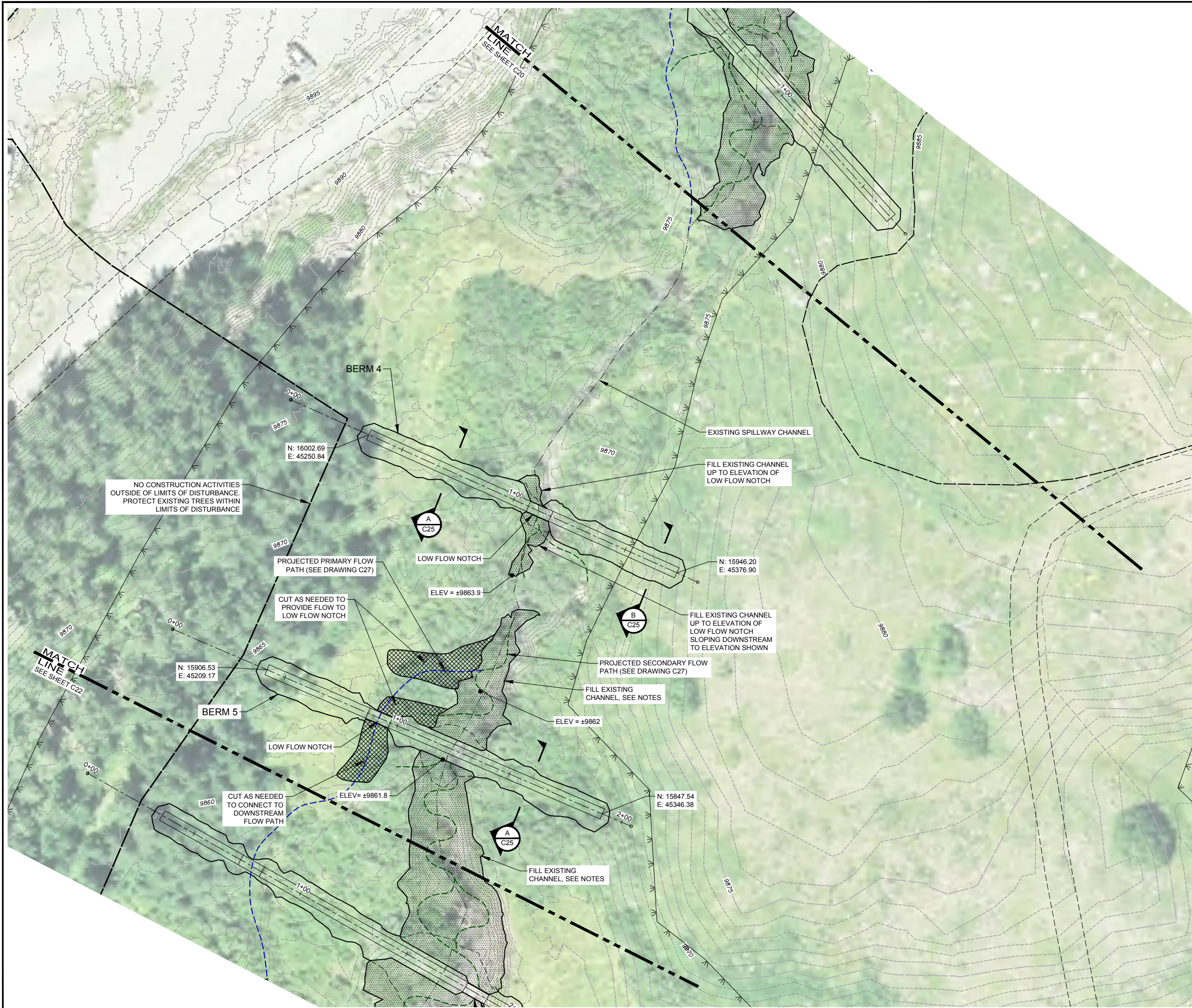
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date

Project Mgr. CTG	Designed By: DWR
Drawn By: RBR	Approved By: TWR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.
C20
SHEET 27 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 SPILLWAY PLAN 3 OF 3.DWG Thursday, May 06, 2021 6:14 PM By: RICKS, RONALD



- NOTES:**
1. FILL UN-VEGETATED AREA OF EXISTING CHANNEL APPROXIMATELY TO THE LIMITS AND ELEVATIONS SHOWN. FILL UP TO ADJACENT VEGETATED FLOOD PLAIN. FILL ELEVATION ADJACENT TO THE BERM SHOULD BE A MINIMUM 1' BELOW TOP OF BERM ELEVATION.
 2. FILL ELEVATIONS SHOWN ARE APPROXIMATE AND MAY BE FIELD ADJUSTED DURING CONSTRUCTION.
 3. FILL MATERIAL MAY INCLUDE COBBLE AND BOULDERS, BUT SHALL HAVE A MINIMUM OF 18" SOIL COVER.
 4. WATTLES TO BE PLACED ON CHANNEL FILL AREAS. SEE DRAWING C27 FOR DETAILS.



ONE INCH - IF NOT, SCALE ACCORDINGLY

2-26-2021

AVRES
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(970) 223-5556

SPILLWAY PLAN 2 OF 3

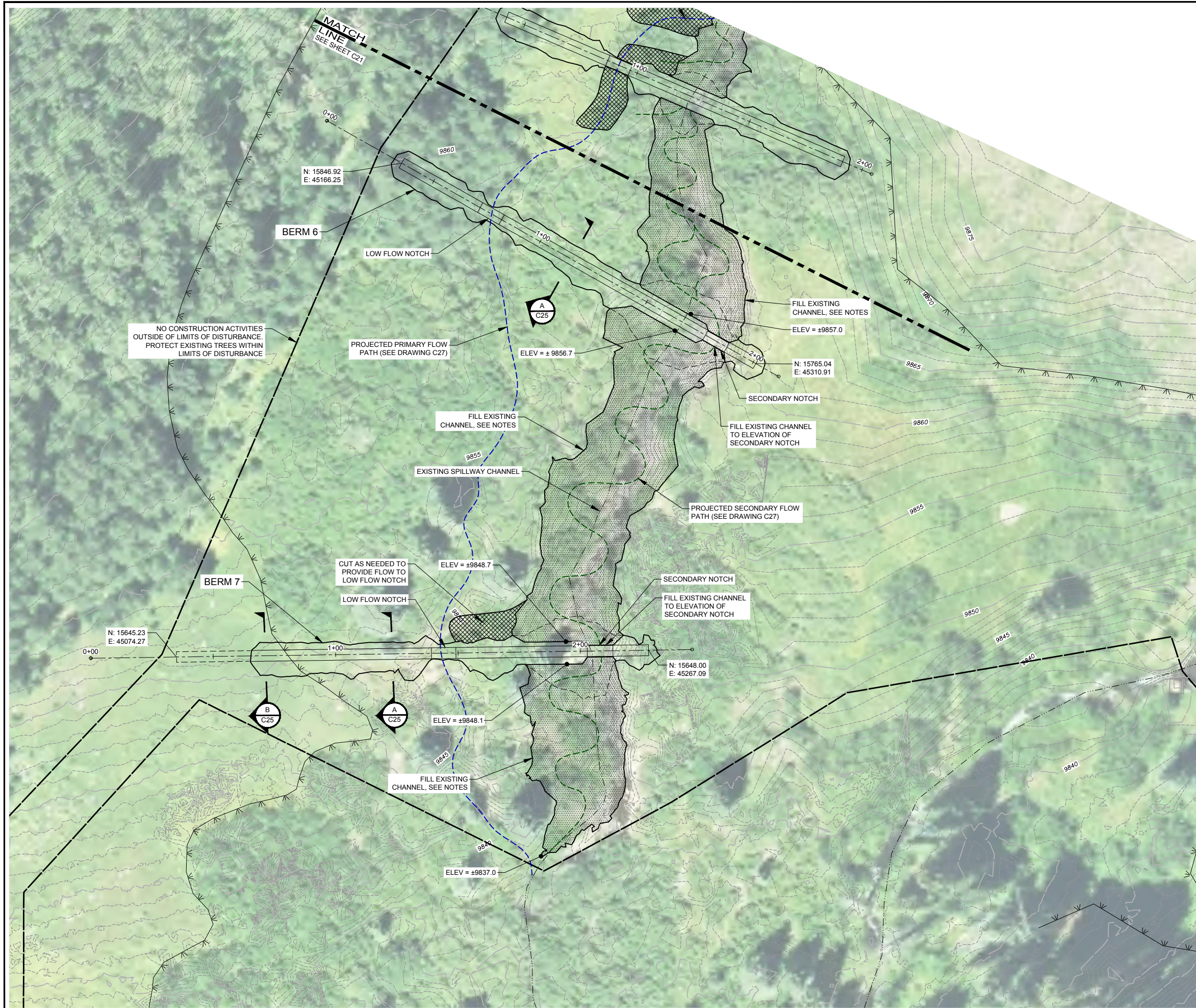
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date

Project Mgr. CTG	Designed By: DWR
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.
C21

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 SPILLWAY PLAN 3 OF 3.DWG Thursday, May 06, 2021 6:14 PM By: RICKS, RONALD



- NOTES:**
1. FILL UN-VEGETATED AREA OF EXISTING CHANNEL APPROXIMATELY TO THE LIMITS AND ELEVATIONS SHOWN. FILL UP TO ADJACENT VEGETATED FLOOD PLAIN. FILL ELEVATION ADJACENT TO THE BERM SHOULD BE A MINIMUM 1' BELOW TOP OF BERM ELEVATION.
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 4. WATTLES TO BE PLACED ON CHANNEL FILL AREAS. SEE DRAWING C27 FOR DETAILS.



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SPILLWAY PLAN 3 OF 3

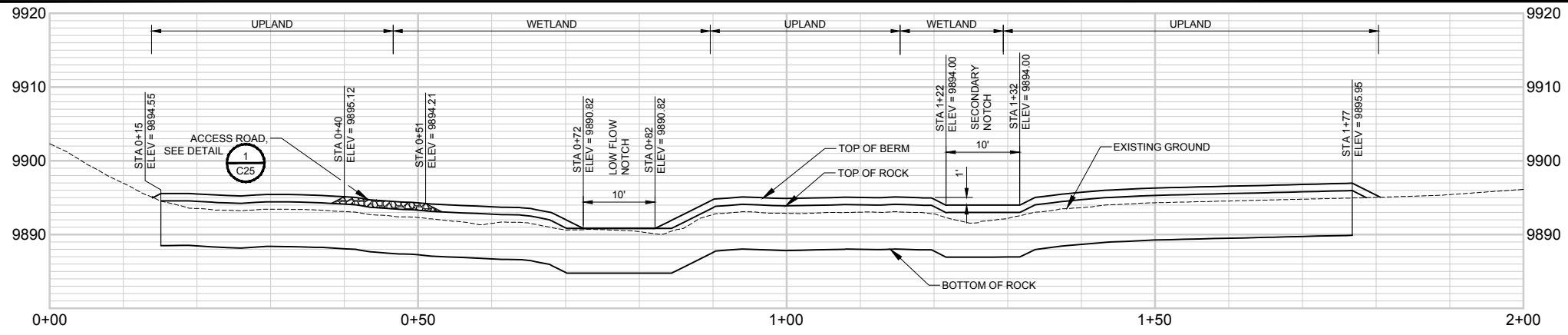
**HOGCHUTE (AKA CARSON)
 RESERVOIR DAM REHABILITATION
 CITY OF GRAND JUNCTION
 MESA COUNTY, COLORADO**

Revisions	Date

Project Mgr. CTG	Designed By: DWR	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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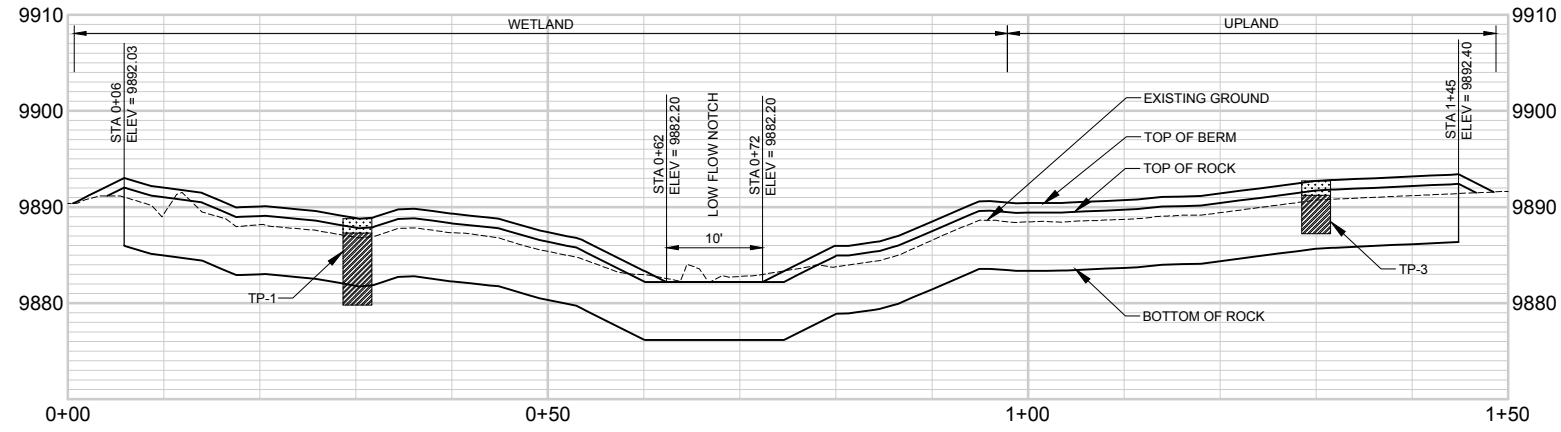
PROJECT NO. 26-1144.00
 DRAWING NO. C22
 SHEET 29 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 SPILLWAY ROCK BERM PROFILES 2 OF 2.DWG Friday, February 26, 2021 5:48 PM By: RICKS, RONALD



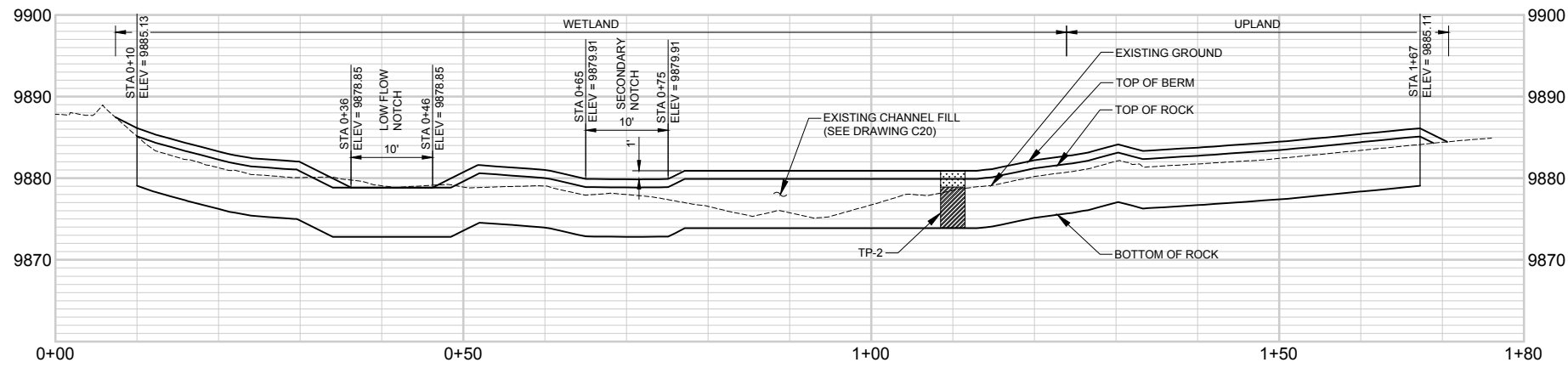
BERM 1 PROFILE

SCALE: AS SHOWN



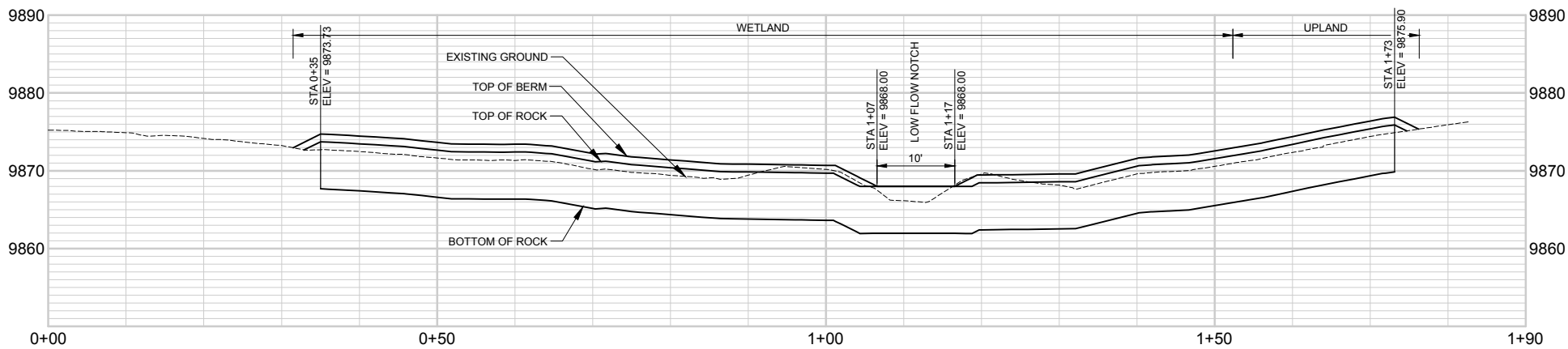
BERM 2 PROFILE

SCALE: AS SHOWN



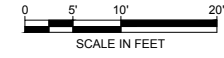
BERM 3 PROFILE

SCALE: AS SHOWN



BERM 4 PROFILE

SCALE: AS SHOWN



NOTES:

1. BERM PROFILES ARE LOOKING UPSTREAM.
2. TP-1, TP-2, AND TP-3 SHOW EXISTING SOIL PROFILE AT TEST PIT LOCATIONS.
3. ALL LOW FLOW NOTCH SIDE SLOPES SHALL BE 2:1.

TEST PIT LEGEND:

- CLAYEY SAND WITH GRAVEL AND ORGANICS (TOPSOIL)
- CLAYEY SAND WITH GRAVEL TO CLAYEY GRAVEL WITH SAND, SOME COBBLES, TRACE BOULDERS, BROWN, MOIST, DENSE TO VERY DENSE.



ONE INCH - IF NOT, SCALE ACCORDINGLY

2-26-2021

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Fort Collins, CO 80525
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SPILLWAY ROCK BERM
PROFILES 1 OF 2

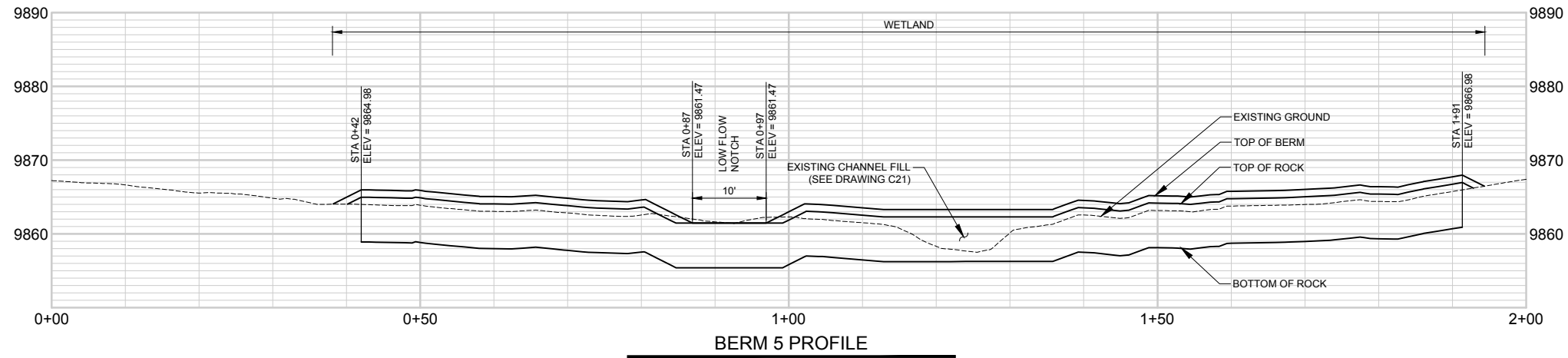
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date
NOT FOR CONSTRUCTION	JAN 2021

Project Mgr. CTG	Designed By: DWR
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

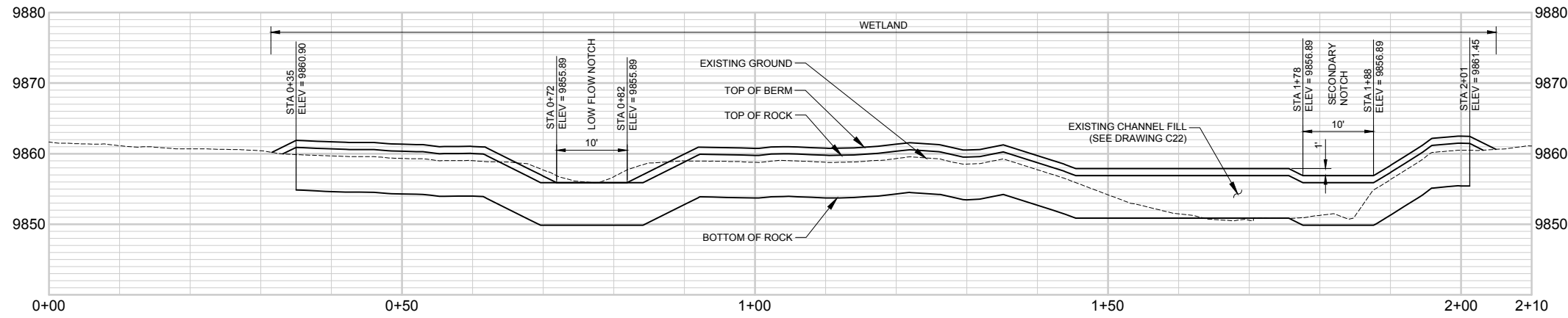
PROJECT NO.
26-1144.00
DRAWING NO.

C23



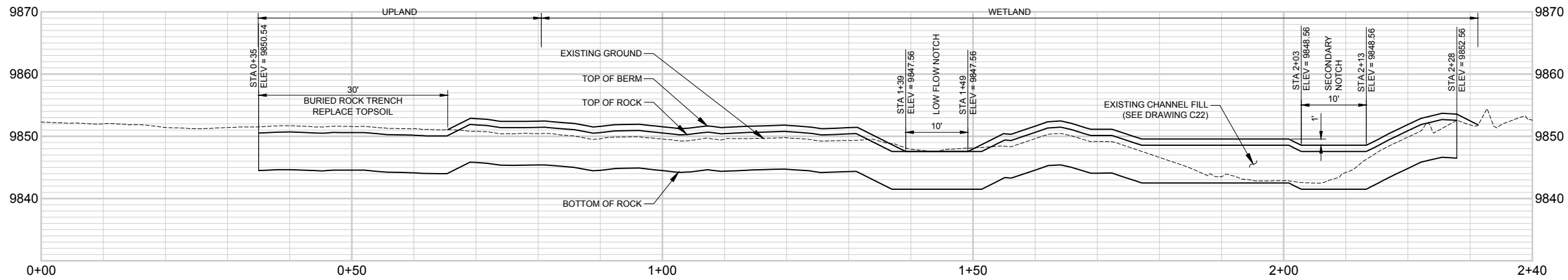
BERM 5 PROFILE

SCALE: AS SHOWN



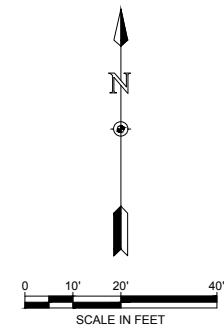
BERM 6 PROFILE

SCALE: AS SHOWN



BERM 7 PROFILE

SCALE: AS SHOWN



NOTES:

1. BERM PROFILES ARE LOOKING UPSTREAM.
2. ALL LOW FLOW NOTCH SIDE SLOPES SHALL BE 2:1.



2-26-2021

ONE INCH - IF NOT,
SCALE ACCORDINGLY



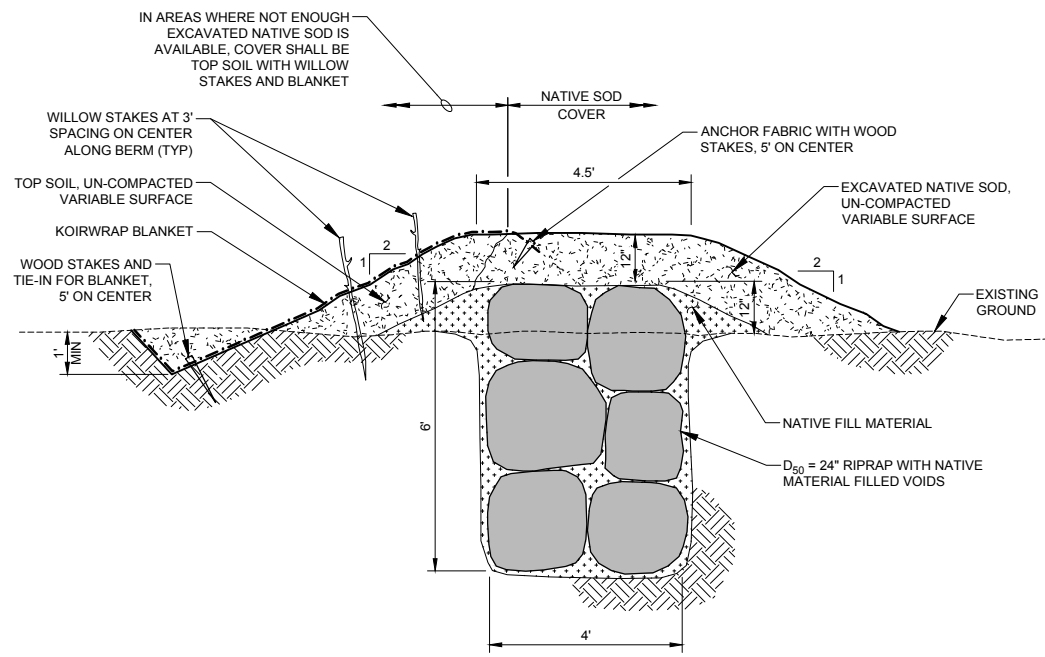
Revisions	Date
NOT FOR CONSTRUCTION	JAN 2021

Project Mgr. CTG	Designed By: DWR
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

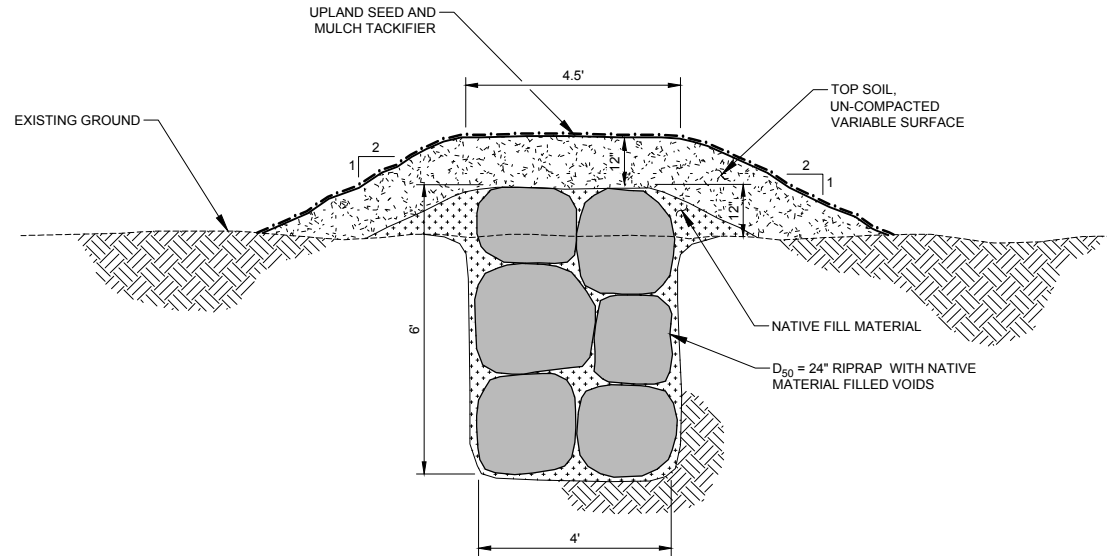
PROJECT NO.
26-1144.00
DRAWING NO.

C24

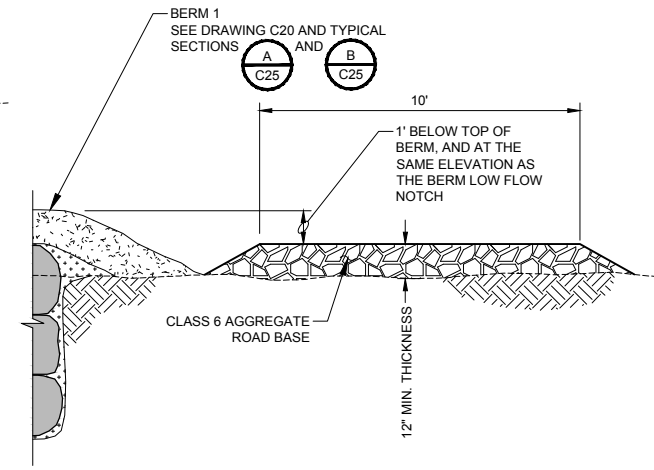
Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 SPILLWAY DETAILS AND SECTIONS.DWG Monday, May 10, 2021 4:45 PM By: RICKS, RONALD



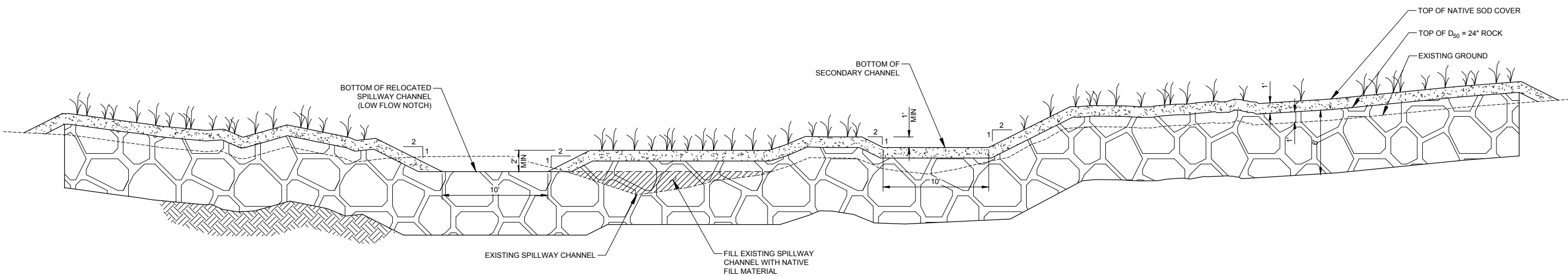
A
C25
WETLAND TYPICAL BERM SECTION
NOT TO SCALE



B
C25
UPLAND TYPICAL BERM SECTION
NOT TO SCALE



1
C25
ACCESS ROAD AT BERM 1 DETAIL
NOT TO SCALE



C
C25
TYPICAL BERM PROFILE
SCALE: 1"=5'



2-26-2021

ONE INCH - IF NOT, SCALE ACCORDINGLY

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SPILLWAY DETAILS
AND SECTIONS

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

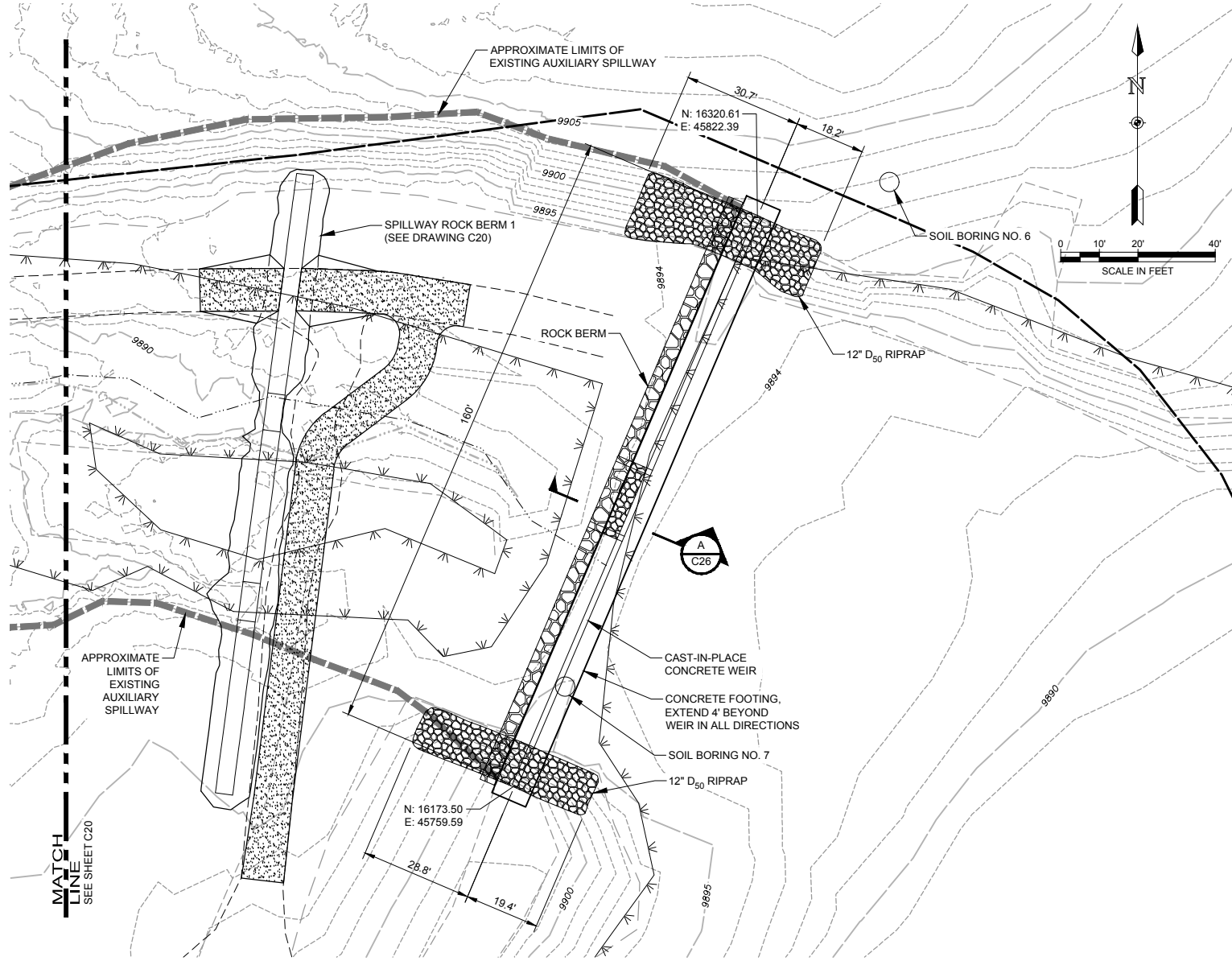
Revisions	Date

Project Mgr. CTG	Designed By: DWR
Drawn By: RBR	Approved By: TWR
Date: 05/10/21	

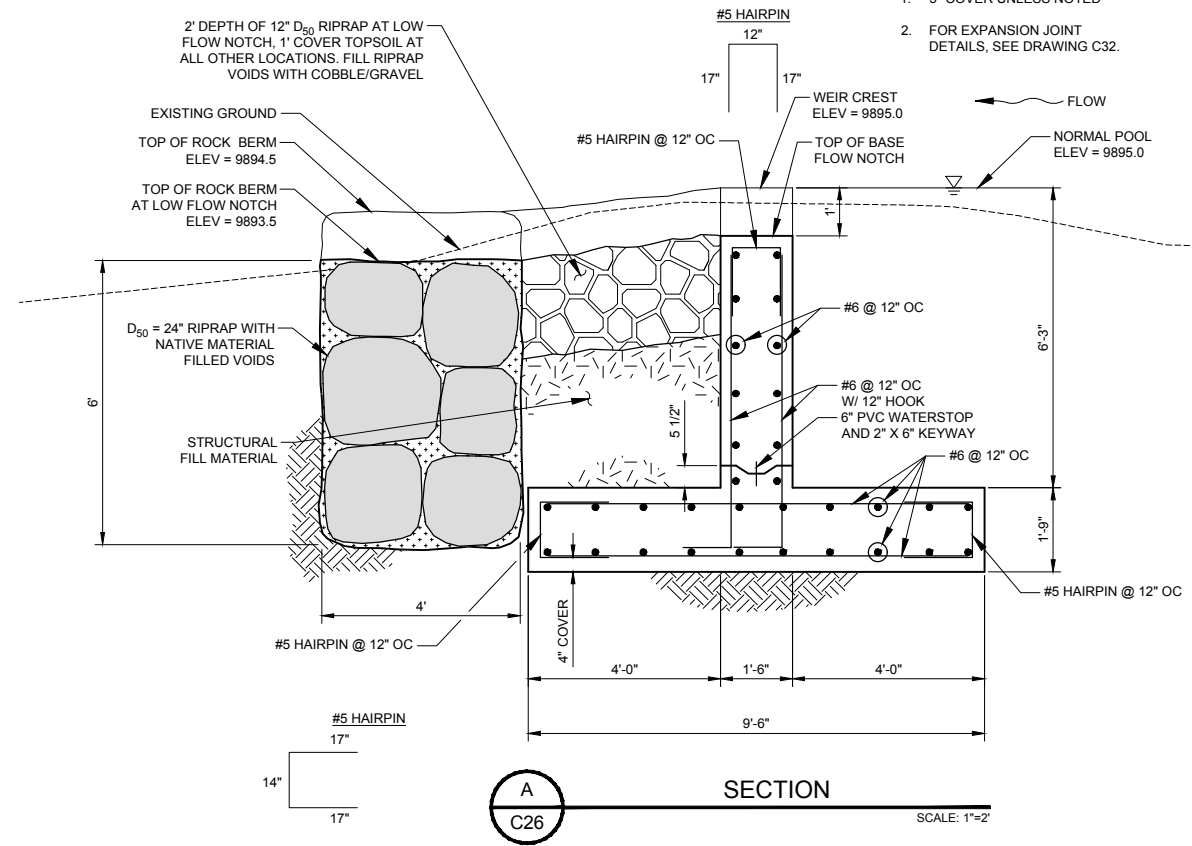
PROJECT NO.
26-1144.00
DRAWING NO.

C25

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\26-1144.00 SPILLWAY OVERFLOW WER PLAN AND DETAILS.DWG Monday, May 10, 2021 4:44 PM By: RICKS, RONALD

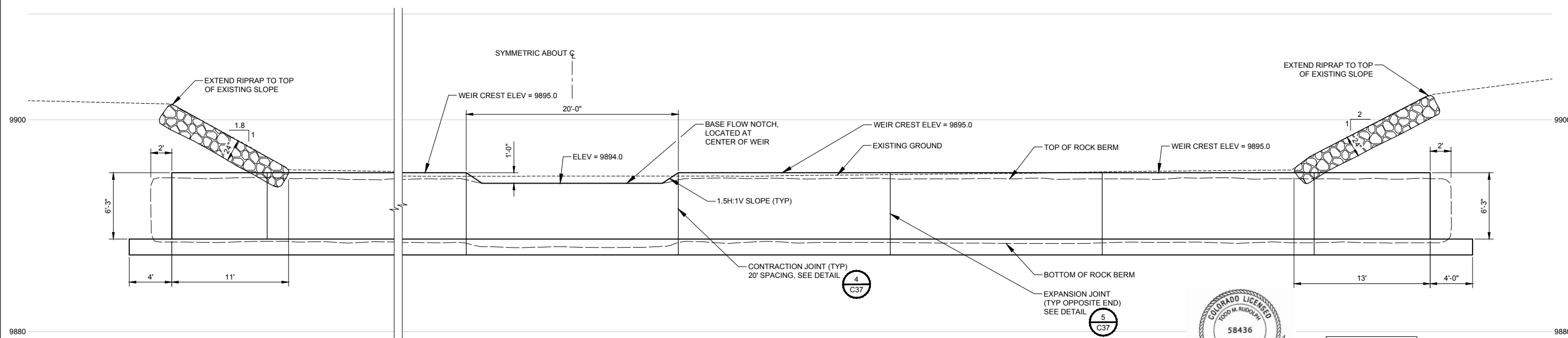


OVERFLOW WEIR PLAN
SCALE: AS SHOWN



NOTES:
1. 3" COVER UNLESS NOTED
2. FOR EXPANSION JOINT DETAILS, SEE DRAWING C32.

SECTION
SCALE: 1"=2'



FRONT ELEVATION
SCALE: 1"=5'



ONE INCH - IF NOT, SCALE ACCORDINGLY

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**SPILLWAY OVERFLOW WIER
PLAN AND DETAILS**

**HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO**

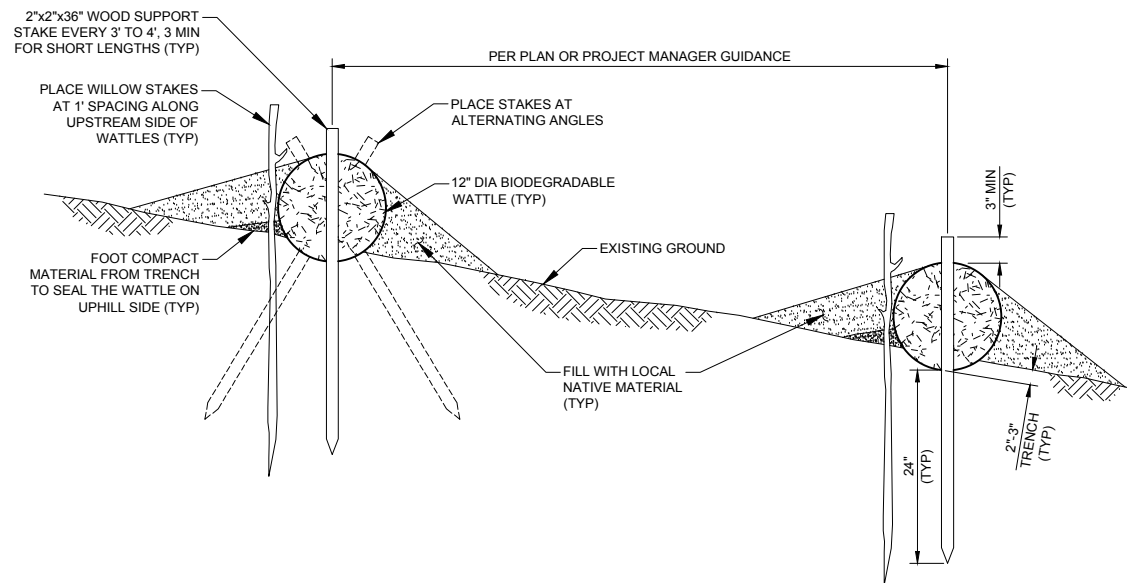
Date

Project Mgr. CTG	Designed By: AJS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.

C26

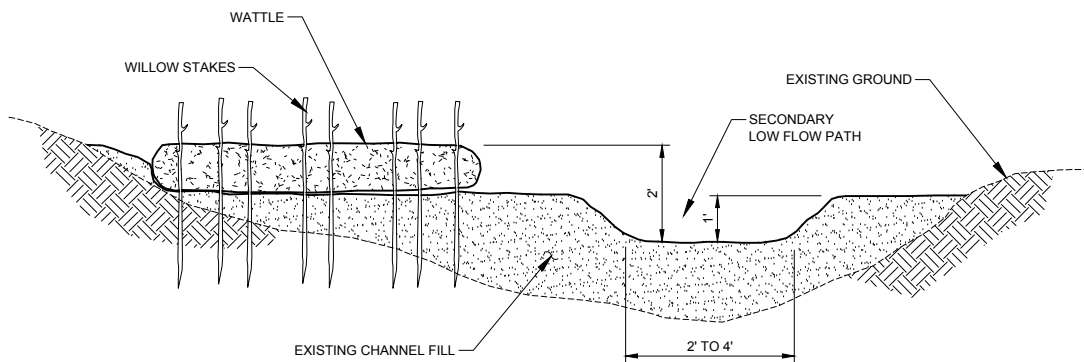
Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 SPILLWAY WATTLE PLAN AND DETAIL.DWG Friday, February 26, 2021 5:49 PM By: RICKS, RONALD



1
C27
WATTLE DETAIL
NOT TO SCALE

NOTES:

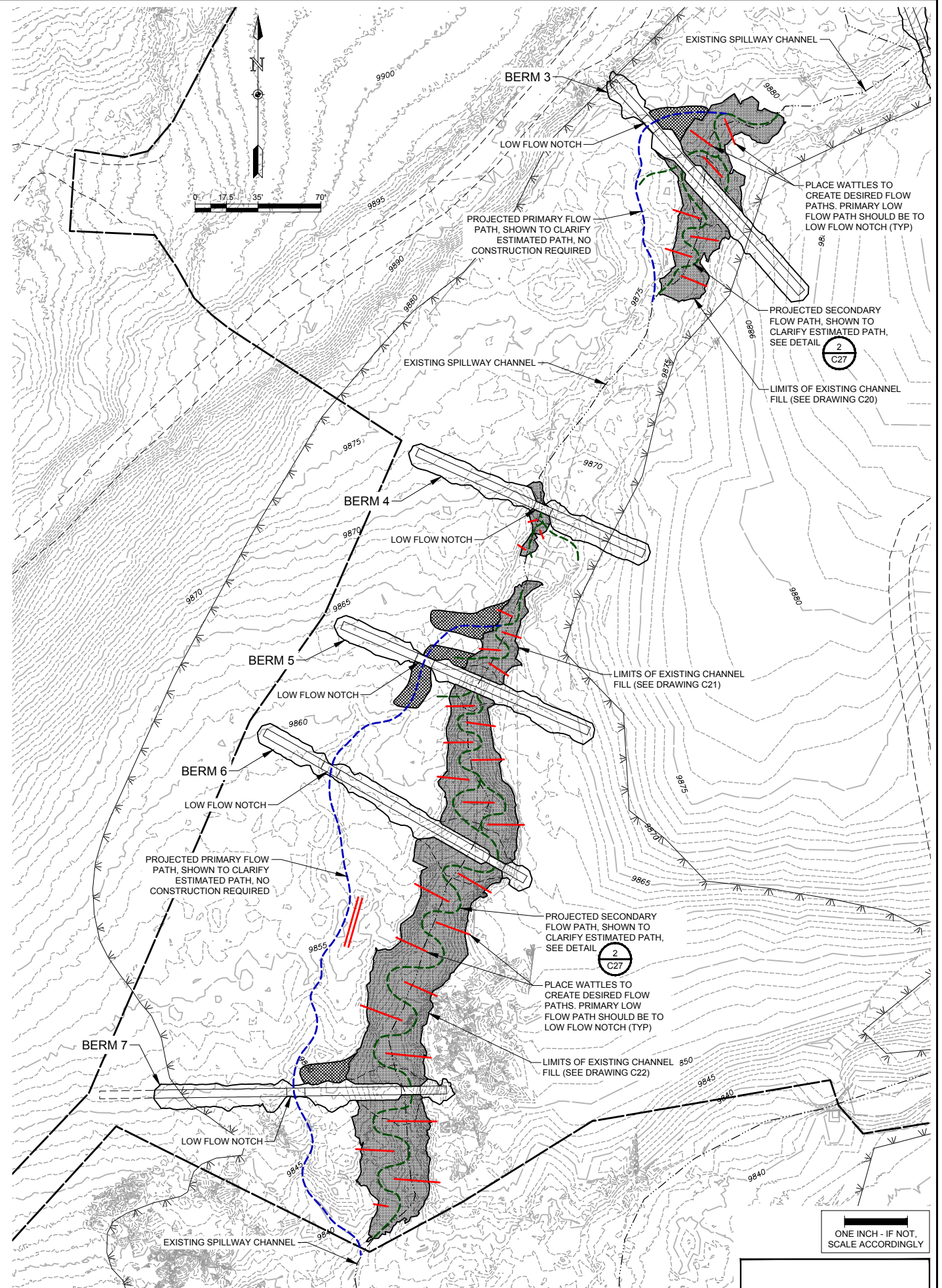
1. WATTLES MAY ALSO BE CALLED FIBER ROLLS, SEDIMENT LOGS, OR EROSION LOGS.
2. PLACE WATTLES WORKING DOWNWARD FROM THE HIGHEST POINT.
3. INSTALL WATTLE IN A SHALLOW TRENCH AS SHOWN IN THE DETAIL. FOOT COMPACT EXCAVATED MATERIAL ON THE UPHILL SIDE OF WATTLE. WHEN JOINING ENDS OF WATTLES, FIT THE ENDS TIGHTLY TOGETHER OR OVERLAP THEM. STAKE WATTLES ON EACH END AND EVERY 3' TO 4' FEET ON CENTER.
4. USE WEED-FREE BIODEGRADABLE MATERIALS WITH A FUNCTIONAL LIFE OF AT LEAST 2 YEARS. THE DENSITY OF THE MATERIAL SHALL BE IN THE RANGE OF 2.7 TO 4.5 LBS PER CUBIC FOOT.
5. INSPECT THE WATTLES AFTER ANY STORMS (DURING CONSTRUCTION) THAT PRODUCE RUNOFF AT THE SITE. REPAIR DAMAGED WATTLES, RESTORE SEAL ON THE UPHILL SIDES, REPLACE STAKES, AND ADD MORE STAKES IF NEEDED.



2
C27
WATTLE, SECONDARY FLOW LOW PATH DETAIL
NOT TO SCALE

LEGEND:

- WATTLE
- PRIMARY FLOW PATH
- SECONDARY FLOW PATH
- EXISTING SPILLWAY CHANNEL



ONE INCH - IF NOT, SCALE ACCORDINGLY



SPILLWAY PRIMARY AND SECONDARY CHANNEL PLAN AND WATTLE DETAIL

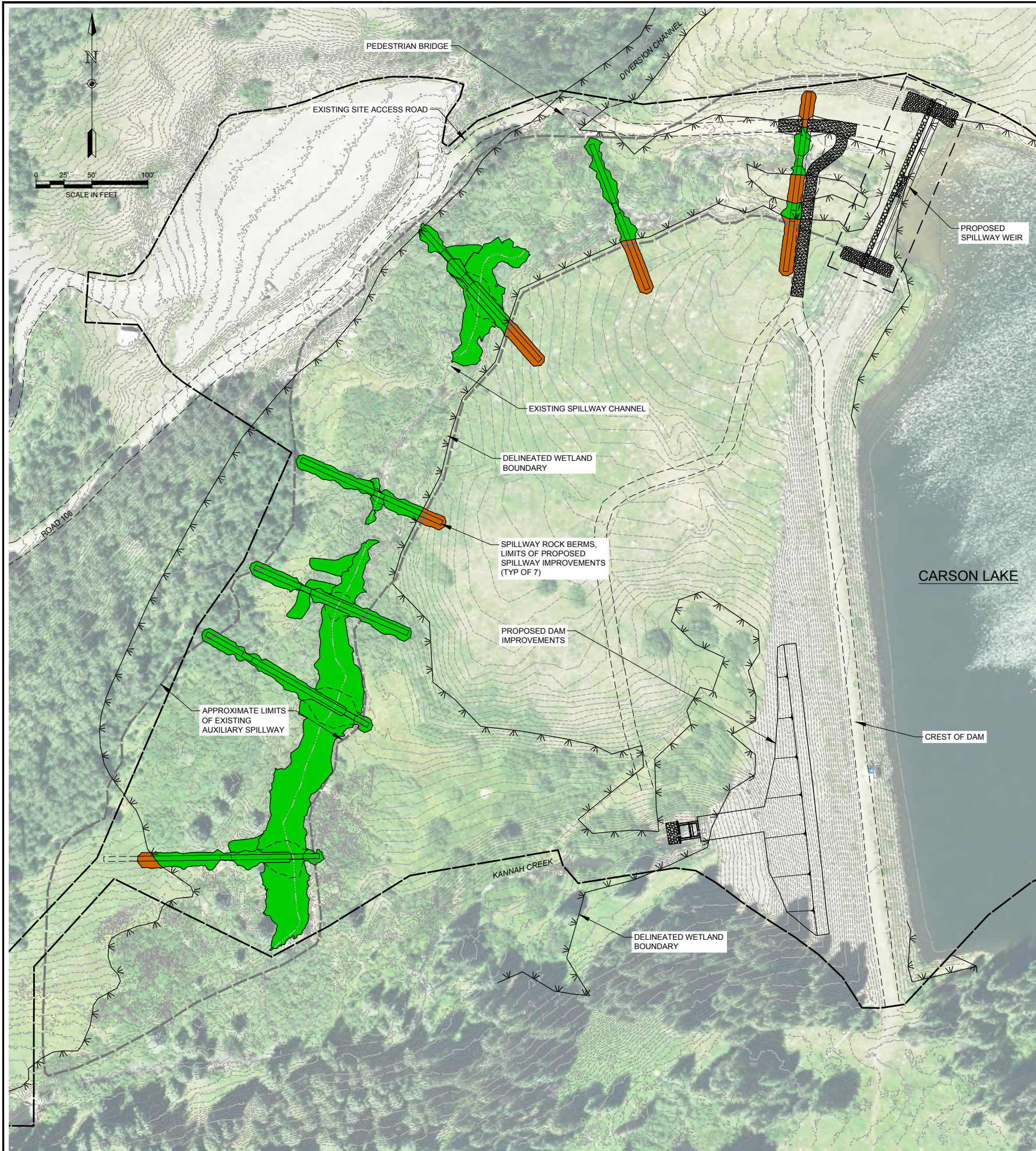
HOGCHUTE (AKA CARSON) RESERVOIR DAM REHABILITATION CITY OF GRAND JUNCTION MESA COUNTY, COLORADO

Revisions	Date

Project Mgr. CTG	Designed By: DWR
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO. 26-1144.00
DRAWING NO. C27
SHEET 34 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 SPILLWAY PLANTING PLAN.DWG Friday, February 26, 2021 5:49 PM By: RICKS, RONALD



REVEGETATION NOTES:

1. TOPSOIL WILL BE SALVAGED AND REUSED IN ALL AREAS.
2. WETLAND AREA TOPSOIL WILL BE REMOVED AS A SOD LAYER AND STORED AND WATERED ONSITE. WETLAND SOD WILL BE PLACED ON TOP OF BERMS WITHIN THE WETLAND ZONE FOLLOWING CONSTRUCTION. EXISTING WILLOWS CAN BE TRIMMED AND INCLUDED IN SOD OR EXCAVATED WITH ROOT MASS, STORED AND WATERED, AND REPLANTED ALONG BERM.
3. WETLAND LOCATIONS THAT ARE NOT ABLE TO BE COVERED IN HARVESTED WETLAND SOD WILL BE SEEDED AND PLANTED WITH WILLOW CUTTINGS.
4. THE DEPTH OF TOPSOIL SALVAGE IS APPROXIMATELY 6 INCHES, BUT MAY VARY DEPENDING ON ACTUAL SITE CONDITIONS. TOPSOIL GENERALLY INCLUDES THE UPPER PART OF THE SOIL PROFILE WITH THE FOLLOWING CHARACTERISTICS (NRCS 1993, 1999; HECKMAN 2003).
 - A. WHERE PLANTS HAVE MOST OF THEIR ROOTS
 - B. WHERE THE SOIL IS DARKENED FROM THE PRESENCE OF ORGANIC MATTER
 - C. WHERE THERE IS A COMBINATION OF PARTICLE SIZES WITH GENERALLY NO MORE THAN APPROXIMATELY 10 PERCENT GRAVEL, 65 PERCENT SAND, 60 PERCENT SILT, OR 20 PERCENT CLAY.
5. ALL FINISH GRADES TO BE SEEDED/PLANTED WILL BE LOOSE AND ROUGH WITH SUBSTANTIAL "MICROTOPOGRAPHY" (PLUS OR MINUS 4 INCHES). STRAIGHT EDGES AND RIGHT ANGLES ARE TO BE AVOIDED. SOIL WILL BE LOOSENEED TO A DEPTH OF 12 INCHES BEFORE PLANTING OR SEEDING.
6. ALL AREAS DISTURBED BY THE PROJECT WILL RECEIVE 4 INCHES OF TOPSOIL. ANY DISTURBED AREAS OUTSIDE THE PROJECT LIMITS SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.
7. LIVE CUTTINGS SHOULD BE HARVESTED FROM SITES WITHIN 1,000 VERTICAL FEET OF THE PROJECT SITE ELEVATION. CUTTINGS SHALL BE 3-4 FEET IN LENGTH.
8. LIVE CUTTINGS WILL BE HARVESTED WHEN DORMANT (BEFORE LEAVES EMERGE OR AFTER THEY ARE DROPPED) FROM LIVE PLANTS 0.5 TO 1.0 INCH IN DIAMETER. THE STEM WILL BE STRIPPED OF ALL BRANCHES BEFORE CUTTING AND THEN TRIMMED TO THE DESIRED LENGTH. THE LOWER (ROOTING) END OF THE STEM WILL BE CUT AT A 45-DEGREE ANGLE AND THE UPPER END WILL BE CUT AT A 90-DEGREE ANGLE. THE LOWER END OF THE CUTTINGS WILL BE PLACED INTO COLD WATER (<50-DEGREES F) WITHIN ONE MINUTE OF CUTTING AND THEN TRANSFERRED TO A STORAGE VESSEL WITHIN 1 HOUR WHERE THEY WILL REMAIN COMPLETELY SUBMERGED FOR AT LEAST 72 HOURS, BUT NOT MORE THAN 14 DAYS, PRIOR TO PLANTING. DURING PLANTING, THE CUTTINGS WILL BE KEPT WET UNTIL PLACED INTO THE GROUND AND WILL NOT BE ALLOWED OUT OF WATER FOR MORE THAN 10 MINUTES.
9. CUTTINGS SHALL BE INSTALLED SO THAT 2/3 OF THE CUTTING ARE BELOW GRADE.
10. NO EQUIPMENT SHALL BE ALLOWED IN THE RESTORATION AREA AFTER THE SOIL IS LOOSENEED.
11. ALL BLANKETED AREAS WILL BE LOOSENEED, SEEDED, AND MULCHED ACCORDING TO THE REVEGETATION PLAN PRIOR TO BLANKET OR MULCH INSTALLATION.
12. SEEDING WILL ONLY BE PERFORMED BETWEEN SEPTEMBER 1 AND WHEN THE GROUND FREEZES, OR WITHIN 30 DAYS AFTER GROUND THAWS.
13. SEEDED AREAS WILL BE HYDRO MULCHED TO ACHIEVE APPROXIMATELY 80 PERCENT GROUND COVER.
14. WETLAND SEED MIX SHALL BE MONTANE WET MEADOW MIX BY WESTERN NATIVE SEED (COALDALE, CO, 719-942-3935, westernnativeseed.com), OR APPROVED EQUAL.
15. UPLAND SEED MIXTURE SHALL BE HIGH ALTITUDE NATIVE GRASS MIX BY BEAUTY BEYOND BELIEF WILDFLOWER SEED (BOULDER, COLORADO, 303.530.1222, www.bbbseed.com), OR APPROVED EQUAL.
16. WILLOW CUTTINGS SHALL BE INSTALLED WHEN LOCAL WILLOWS ARE DORMANT. CONTAINER STOCK MAY BE SUBSTITUTED FOR CUTTINGS. WILLOWS WILL BE COMPOSED OF THE FOLLOWING SPECIES, WITH EACH SPECIES EVENLY DISTRIBUTED THROUGHOUT THE PLANTING AREAS:
 - SANDBAR WILLOW (SALIX EXIGUA) - 60%
 - BEBB WILLOW (SALIX BEBBIANA) - 20%
 - DRUMMOND WILLOW (SALIX DRUMMONDIANA) - 20%

LEGEND:

- WETLAND PLANTING
- UPLAND PLANTING



2-26-2021

ONE INCH - IF NOT, SCALE ACCORDINGLY

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SPILLWAY PLANTING PLAN

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

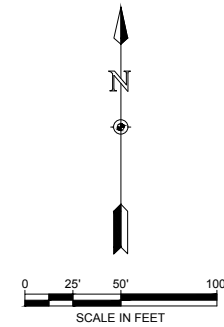
Revisions	Date

Project Mgr. CTG	Designed By: DWR
Drawn By: RBR	Approved By: TWR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.

C28

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-11444.00 DAM INSTRUMENTATION.DWG Monday, May 10, 2021 4:18 PM By: RICKS, RONALD



NOTES:

COORDINATE WITH EARLY WARNING SYSTEM VENDOR TO CONFIRM LOCATION AND DESIGN OF REQUIRED APPURTENANCES.

PRIMARY STATION COMPONENTS:

- 1) BULLET-RESISTANCE ENCLOSURE
- 2) BUBBLER WATER LEVEL SENSOR
- 3) PRESSURE TRANSDUCER
- 4) TIPPING BUCKET
- 5) DATA LOGGER
- 6) SOLAR PANEL
- 7) BATTERY (2)
- 8) REGULATOR
- 9) INTRUSION SENSOR

SECONDARY STATION COMPONENTS:

- 1) BULLET-RESISTANCE ENCLOSURE
- 2) PRESSURE TRANSDUCER
- 3) DATA LOGGER WITH SPREAD-SPECTRUM WIRELESS CONNECTION TO PRIMARY STATION
- 4) SOLAR PANEL
- 5) BATTERY (2)
- 6) REGULATOR
- 7) INTRUSION SENSOR

LEGEND:

- EXISTING PIEZOMETERS (DO NOT DISTURB)
- SURVEY MONUMENTS (DO NOT DISTURB)



ONE INCH - IF NOT, SCALE ACCORDINGLY

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DAM INSTRUMENTATION

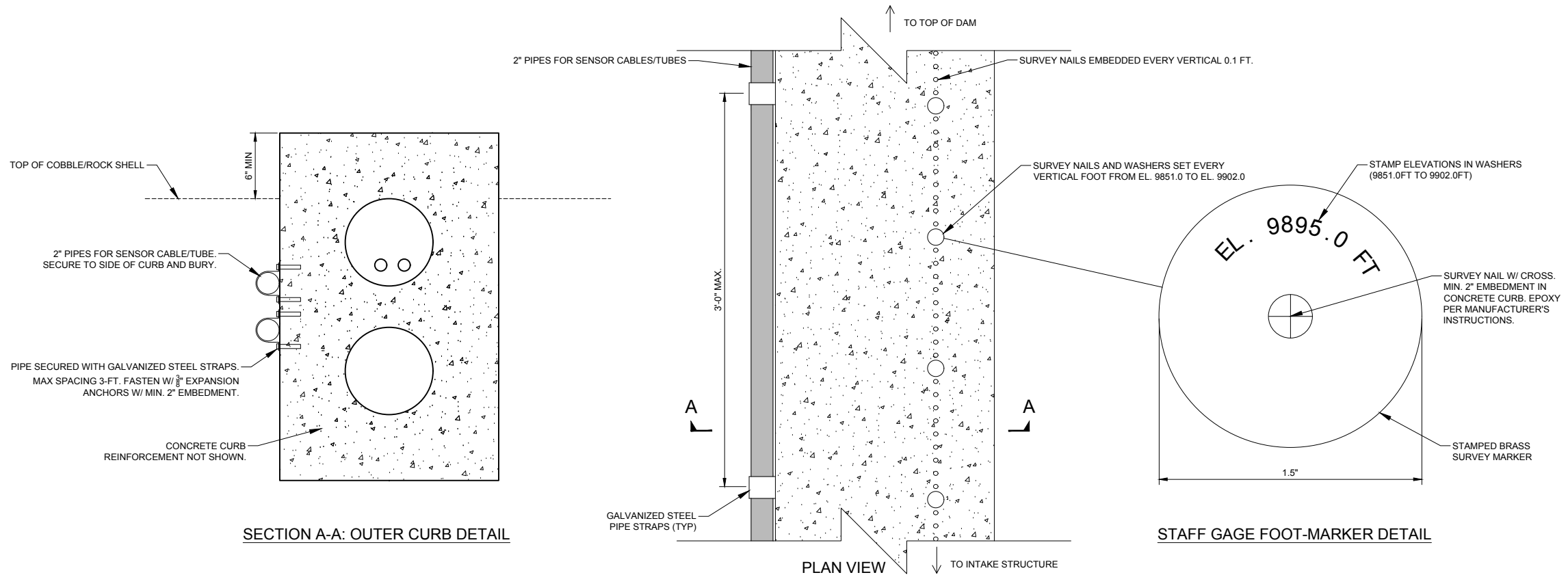
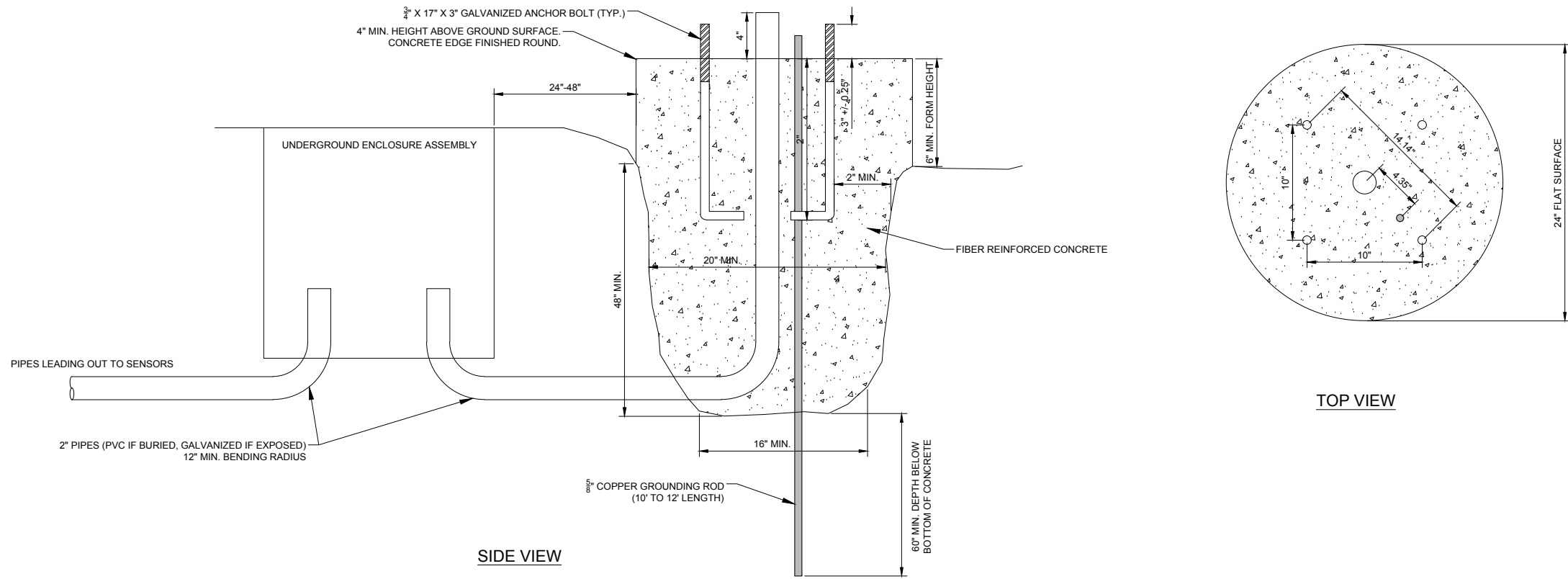
**HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO**

Revisions	Date

Project Mgr. CTG	Designed By: AUS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO. 26-1144.00
DRAWING NO. C29
SHEET 36 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 DAM INSTRUMENTATION.DWG Monday, May 10, 2021 4:18 PM By: RICKS, RONALD



ONE INCH - IF NOT,
SCALE ACCORDINGLY

AVRES
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INSTRUMENTATION DETAILS

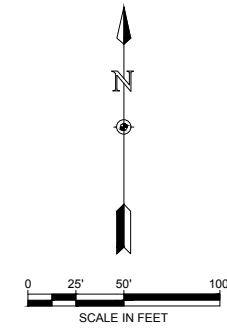
**HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO**

Date

Project Mgr.	CTG	Designed By	Drawn By	Approved By	Date
		AJS	RBR	TMR	05/10/21

PROJECT NO.
26-1144.00
DRAWING NO.
C30

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 WETLAND IMPACT.DWG Friday, February 26, 2021 5:50 PM By: RICKS, RONALD



- NOTES:**
1. THE TOTAL ESTIMATED WETLAND IMPACT OF THE SPILLWAY CHANNEL CONSTRUCTION AND THE OUTFALL RIPRAP BASIN IS 26,922 SQFT (0.62 ACRES).

- LEGEND:**
- LIMITS OF WETLAND BOUNDARY
 - APPROXIMATE LIMITS OF EXISTING AUXILIARY SPILLWAY



ONE INCH - IF NOT,
SCALE ACCORDINGLY

AVRES
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WETLAND IMPACT

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

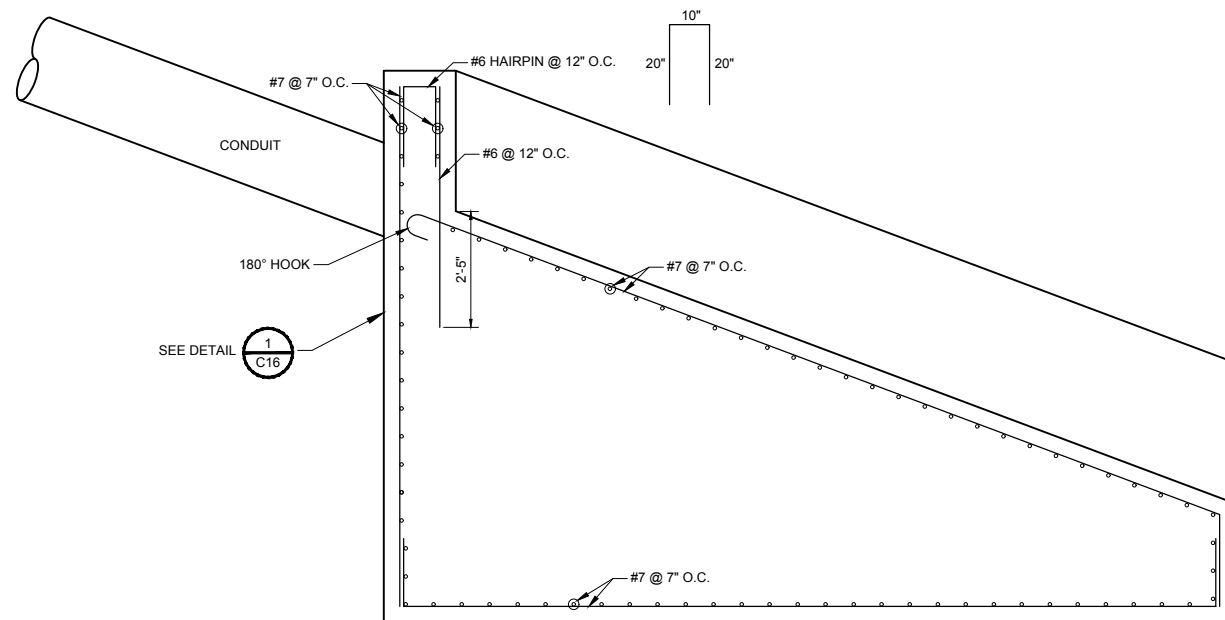
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Designed By: AJS <td></td> <td></td>		
Drawn By: RBR <td></td> <td></td>		
Approved By: TMR <td></td> <td></td>		
		Date: 05/10/21

PROJECT NO. 26-1144.00
DRAWING NO. C31
SHEET 38 OF 44

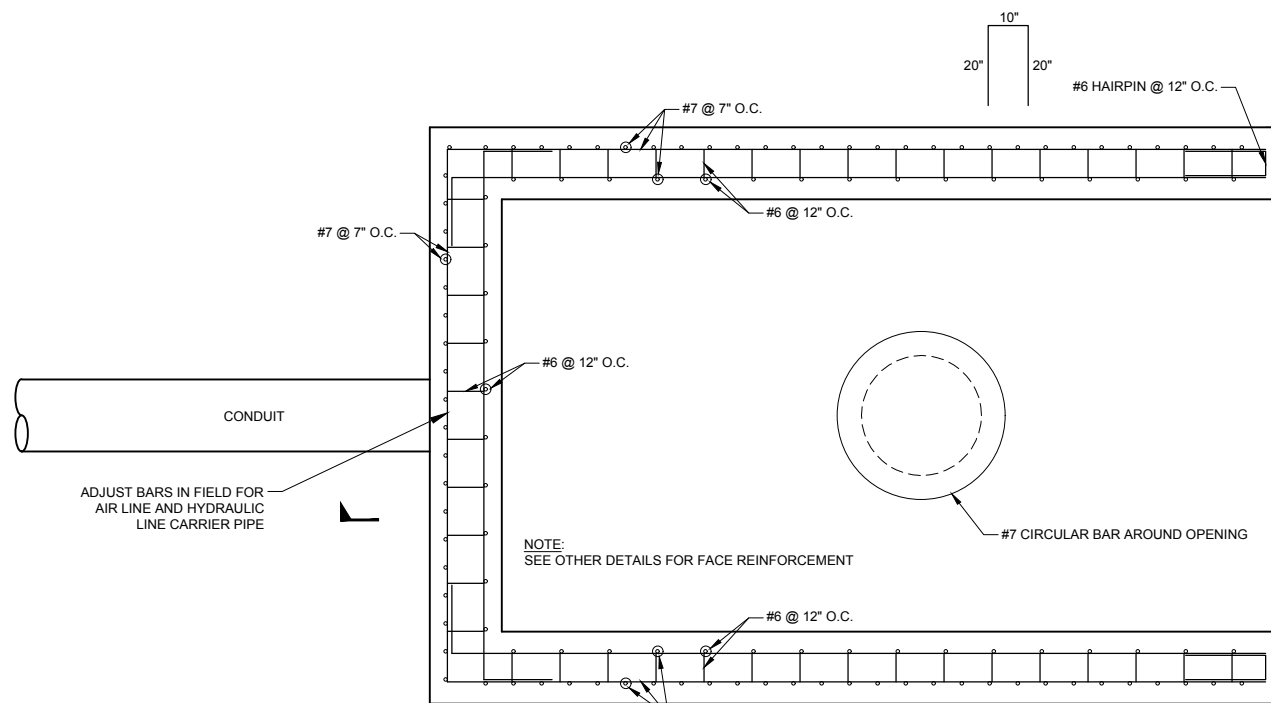
Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 IMPACT BASIN DETAILS.DWG Monday, May 10, 2021 4:30 PM By: RICKS, RONALD

NOTES:

1. 4" COVER UNLESS NOTES.
2. 3/4" CHAMFER ALL EXPOSED CONCRETE EDGES (TYP).



SECTION



PLAN

1
C32 CONCRETE BUTTRESS DETAIL
SCALE: 1/2"=1'-0"

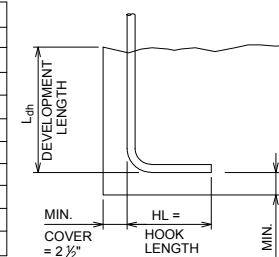
MINIMUM DEVELOPMENT AND SPLICE LENGTHS				
f' _c = 4500 psi clear spacing ≥ 2d _b & clear cover ≥ d _b				
Bar Size Grade 60	Minimum Straight Tension Development Length, l _d		Minimum Lap Splice For Center To Center Bar Spacing	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	1'-6"	1'-2"	1'-11"	1'-6"
#4	2'-0"	1'-6"	2'-7"	2'-0"
#5	2'-6"	1'-11"	3'-2"	2'-6"
#6	2'-11"	2'-3"	3'-10"	2'-11"
#7	4'-3"	3'-4"	5'-7"	4'-3"
#8	4'-11"	3'-9"	6'-4"	4'-11"
#9	5'-6"	4'-3"	7'-2"	5'-6"
#10	6'-2"	4'-9"	8'-0"	6'-2"
#11	6'-10"	5'-4"	8'-11"	6'-10"

NOTES:

1. TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
2. EXCEPT AS OTHERWISE INDICATED ON THE DRAWINGS, LAP SPLICE LENGTH AND TENSION DEVELOPMENT l_d SHALL BE NO LESS THAN (NO MINUS TOLERANCE) SHOWN ABOVE.
3. LAP SPLICES SHALL NOT BE MADE AT POINTS OF MAXIMUM STRESS AS DETERMINED BY THE ENGINEER.
4. WHERE BARS OF DIFFERENT SIZE ARE LAP SPICED, SPLICE LENGTH SHALL BE THE SPLICE LENGTH OF THE LARGER BAR.
5. ALL SPLICES SHALL BE CONTACT SPLICES AND WIRED TOGETHER.
6. APPLIES TO ALL REINFORCING SHOWN ON ALL SHEETS.

MINIMUM DEVELOPMENT & SPLICE LENGTH FOR REBARS

BAR SIZE GRADE 60	f' _c = 4500 psi	
	L _{dh}	HL
#3	6"	6"
#4	7"	8"
#5	8"	10"
#6	10"	1'-0"
#7	11"	1'-2"
#8	1'-1"	1'-4"
#9	1'-3"	1'-8"
#10	1'-4"	1'-10"
#11	1'-6"	2'-0"



COMPLYING WITH MINIMUM COVER REQUIREMENTS OF ACI 318, OTHERWISE L_{dh} MUST BE RE-CALCULATED. APPLIES TO ALL REINFORCING SHOWN ON ALL SHEETS.

TYPICAL 90 DEGREE HOOK FOR REBAR



ONE INCH - IF NOT,
SCALE ACCORDINGLY



CONCRETE BUTTRESS
REINFORCEMENT

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

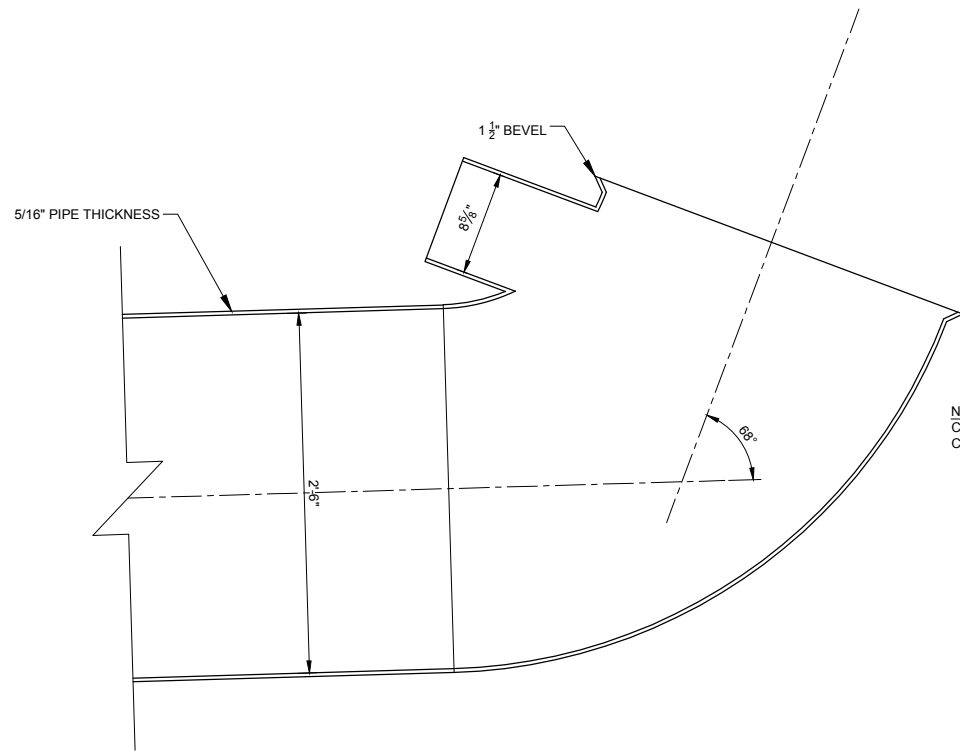
Date

Project Mgr. CTG	Designed By: AUS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.

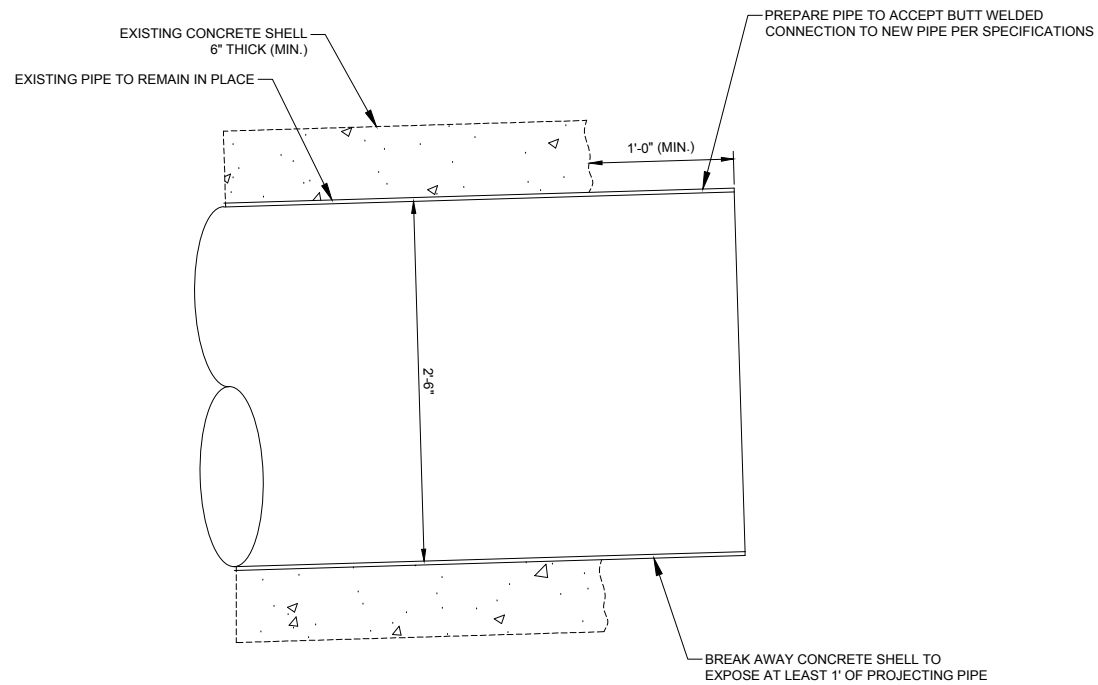
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Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 IMPACT BASIN DETAILS.DWG Monday, May 10, 2021 4:30 PM By: RICKS, RONALD

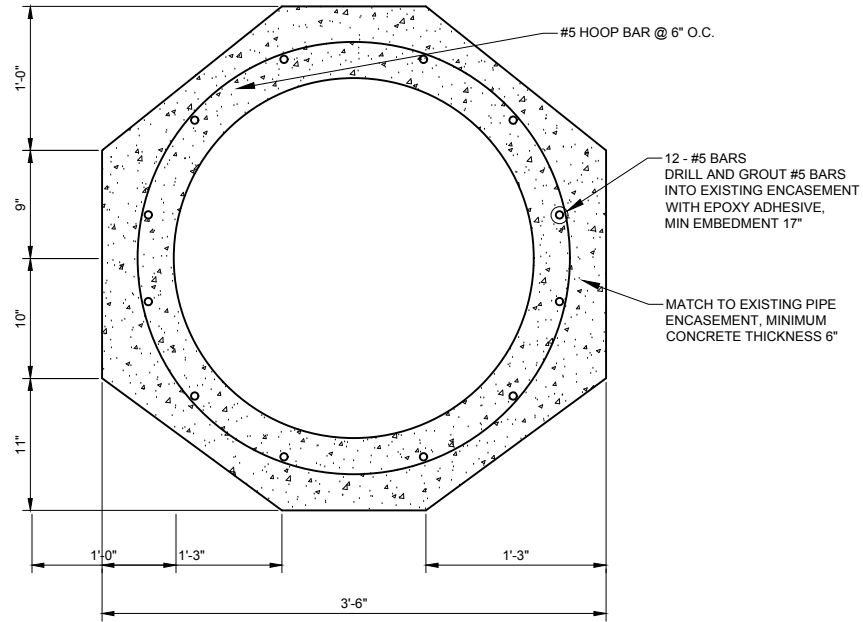


NOTE:
CIPP LINER TO EXTEND TO BEND.
CUT AIR PIPE AFTER CURE IS COMPLETE.

1
C33 **STEEL ELBOW DETAIL**
SCALE: 1"=1'-0"



2
C33 **STEEL PIPE CONNECTION DETAIL**
SCALE: 1"=1'-0"



3
C33 **STEEL PIPE ENCASEMENT DETAIL**
SCALE: 1"=1'-0"



ONE INCH - IF NOT,
SCALE ACCORDINGLY

AVRES
3665 JFK Parkway
Building 2, Suite 100
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(970) 223-5556

STEEL PIPE DETAILS

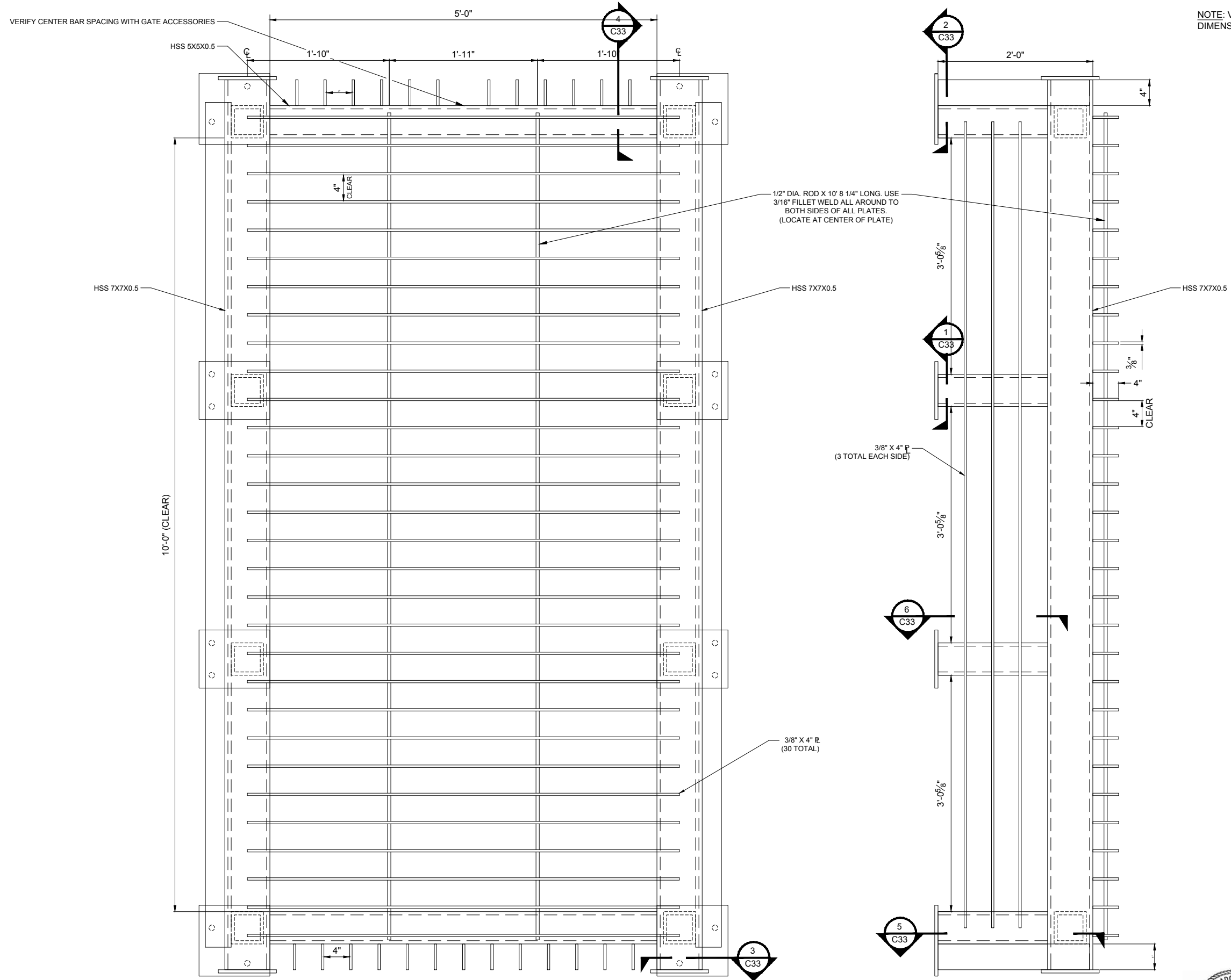
**HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO**

Revisions	Date

Project Mgr. CTG	Designed By: AUS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO.
26-1144.00
DRAWING NO.
C33
SHEET 40 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 IMPACT BASIN DETAILS.DWG Monday, May 10, 2021 4:30 PM By: RICKS, RONALD



NOTE: VERIFY ALL FRAME DIMENSIONS WITH GATE DIMENSIONS DURING SHOP DRAWING PREPARATION.

1 SLIDE GATE TRASH RACK
 C32 SCALE: 1 1/2"=1'-0"



ONE INCH - IF NOT, SCALE ACCORDINGLY

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 Building 2, Suite 100
 Fort Collins, CO 80525
 (970) 223-5556



TRASH RACK DETAILS

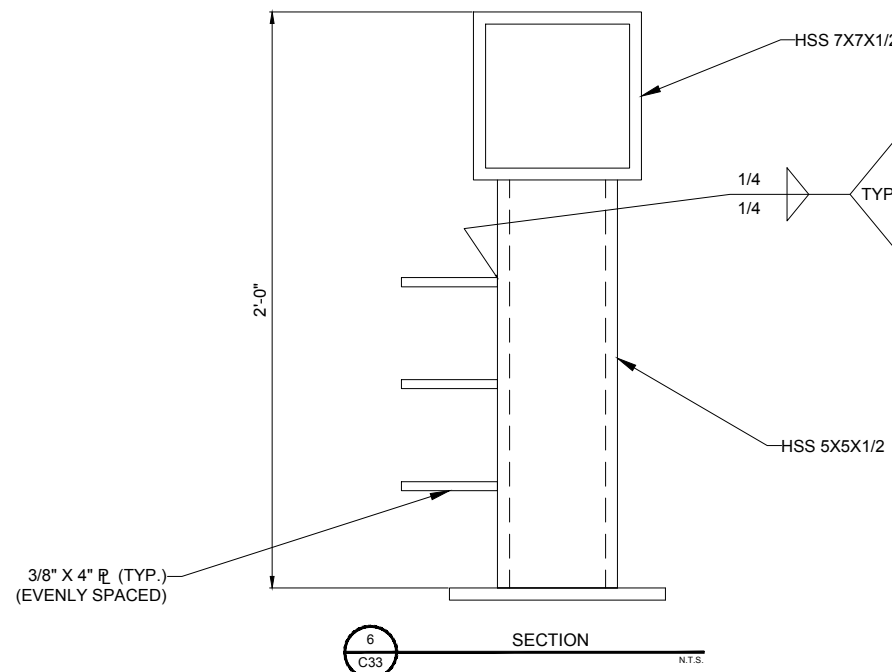
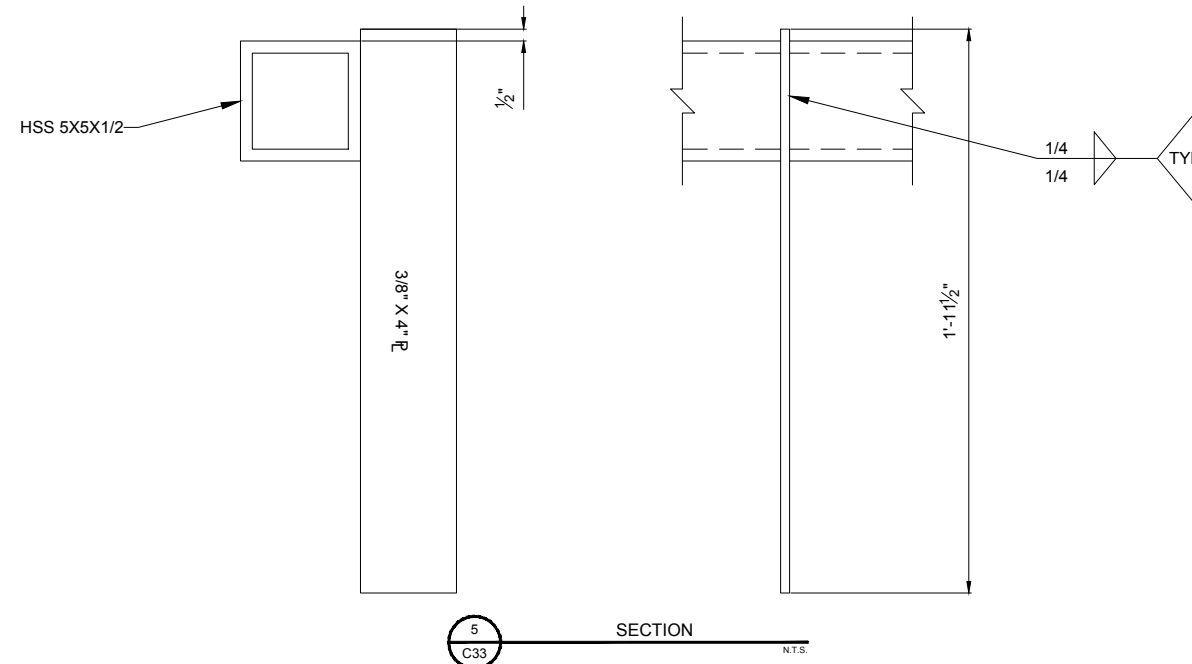
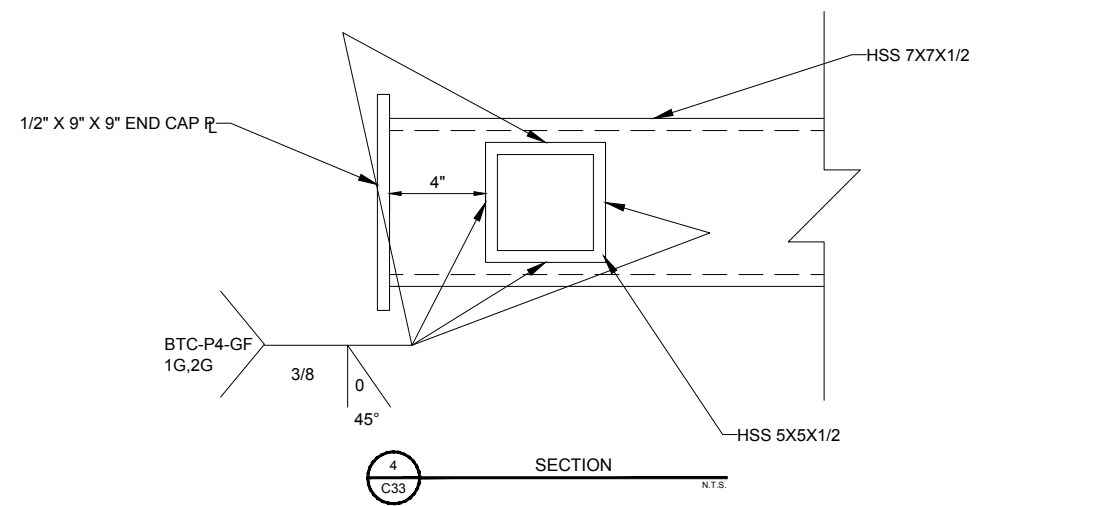
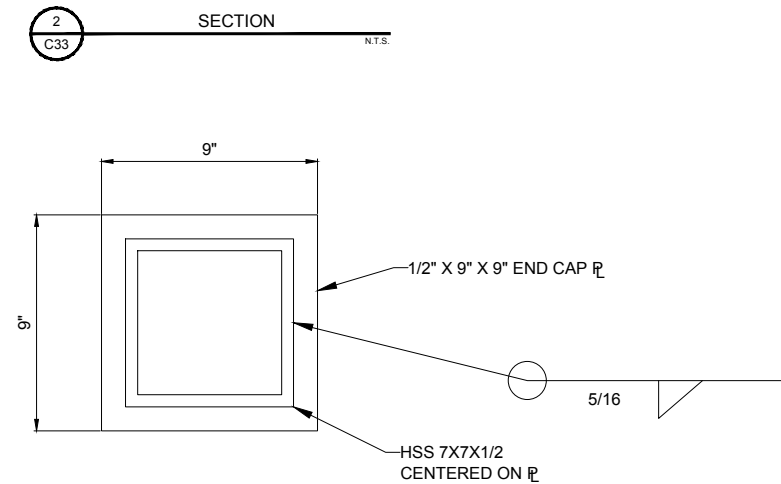
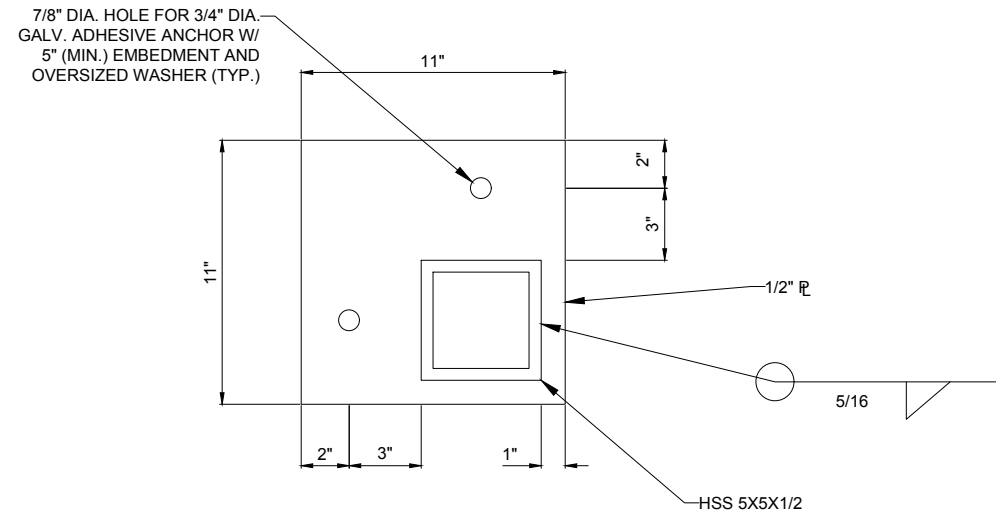
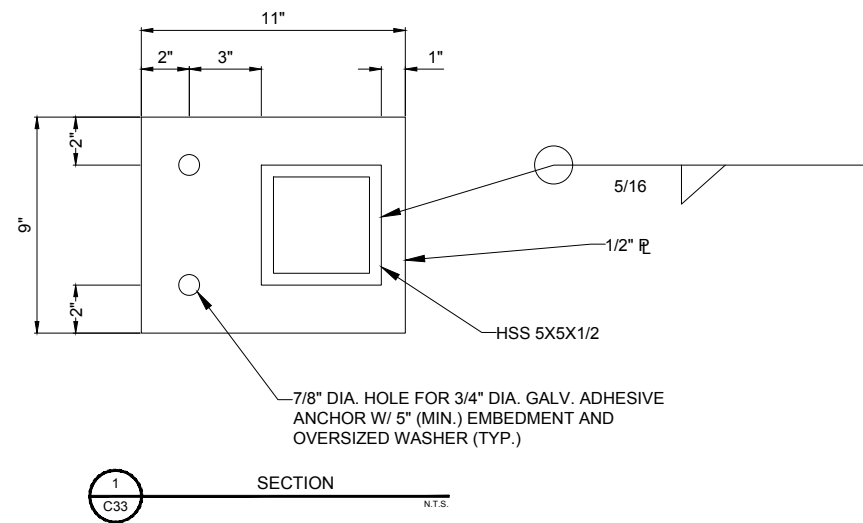
HOGCHUTE (AKA CARSON)
 RESERVOIR DAM REHABILITATION
 CITY OF GRAND JUNCTION
 MESA COUNTY, COLORADO

Revisions	Date

Project Mgr. CTG	Designed By: AJS
Drawn By: RBR	Approved By: TMR
Date: 05/10/21	

PROJECT NO. 26-1144.00
 DRAWING NO. C34

NOTE: VERIFY ALL FRAME DIMENSIONS WITH GATE DIMENSIONS DURING SHOP DRAWING PREPARATION.



GOLDADO LICENSED
PROFESSIONAL ENGINEER
58436
2/20/2021

ONE INCH - IF NOT, SCALE ACCORDINGLY

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 IMPACT BASIN DETAILS.DWG Monday, May 10, 2021 4:30 PM By: RICKS, RONALD

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(970) 223-5556

TRASH RACK DETAILS

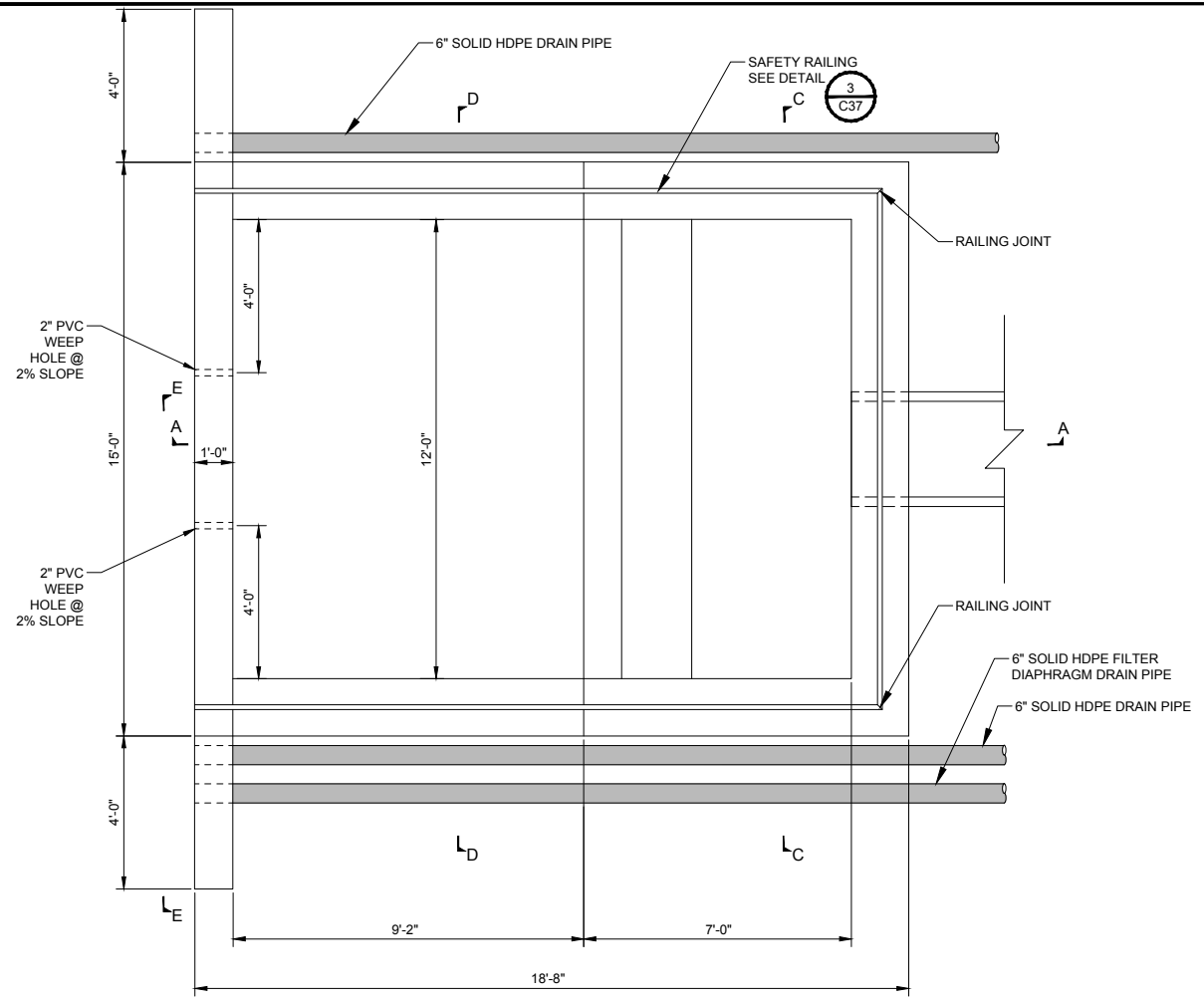
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date

Project Mgr. CTG	Designed By: AUS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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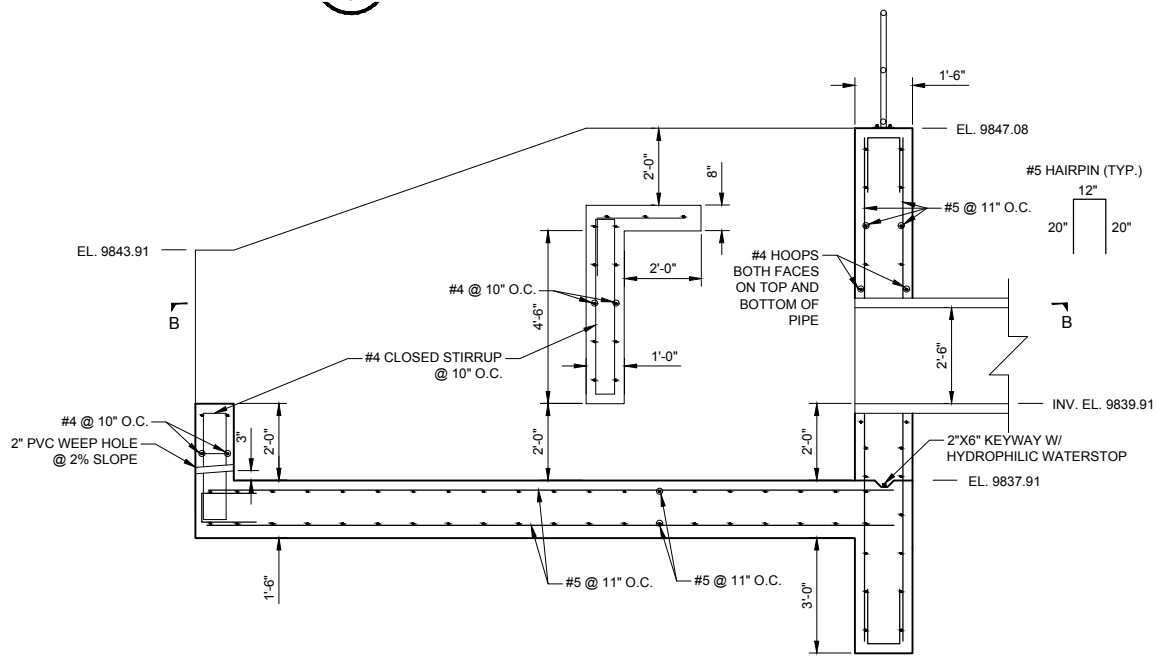
PROJECT NO. 26-1144.00
DRAWING NO. C35
SHEET 42 OF 44

Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\26-1144.00 IMPACT BASIN DETAILS.DWG Monday, May 10, 2021 4:30 PM By: RICKS, RONALD

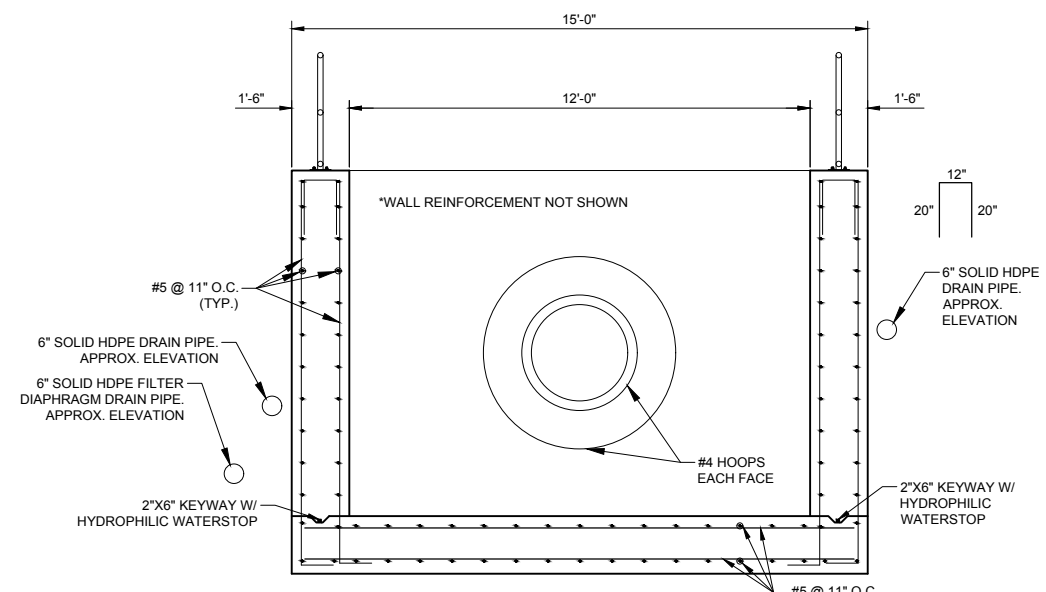


PLAN

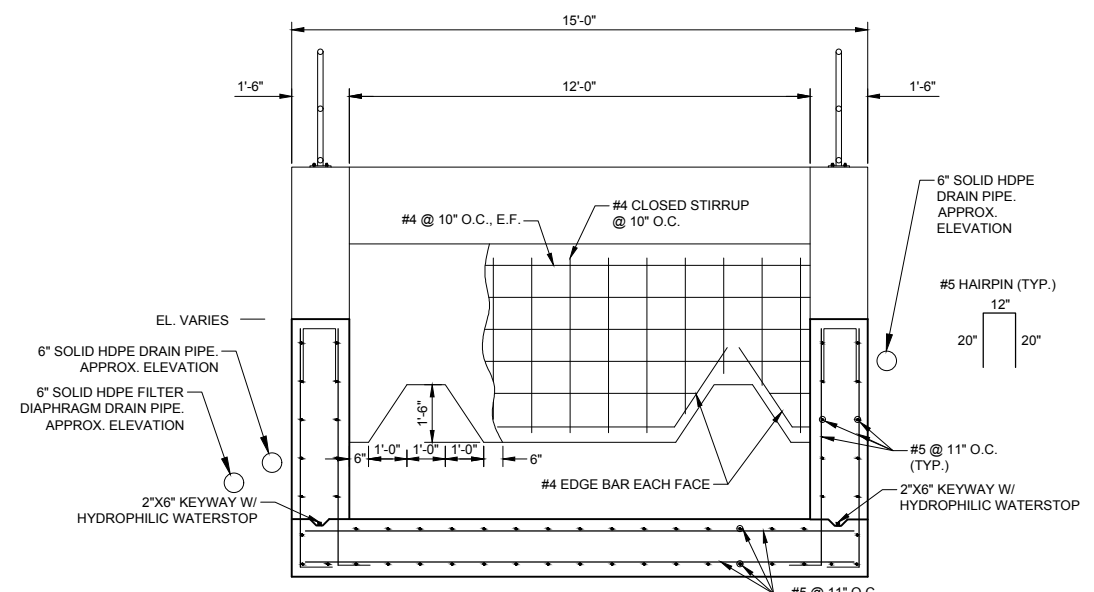
1 IMPACT BASIN DETAIL
C11,C12 NOT TO SCALE



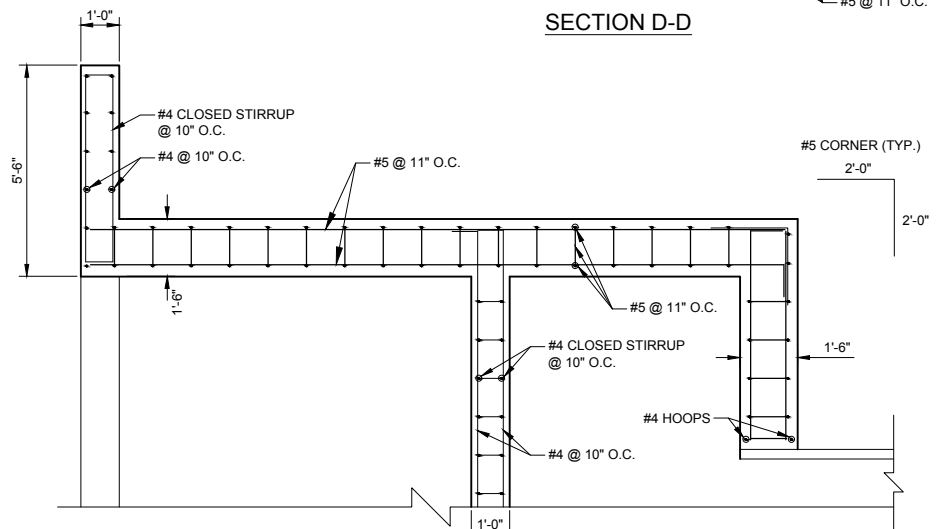
SECTION A-A



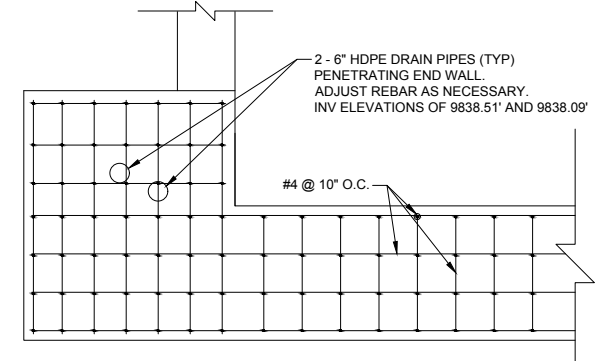
SECTION C-C



SECTION D-D



SECTION B-B



SECTION E-E

- NOTES:**
- 3" COVER ON 1'-6" THICK SECTIONS.
 - 2" COVER ON 1'-0" THICK SECTIONS.
 - PLACE REINFORCEMENT IN CENTER FOR SECTIONS LESS THAN 1'-0".
 - 3/4" CHAMFER ALL EXPOSED CONCRETE EDGES (TYP).
 - SEE SHEET C29 FOR REINFORCEMENT DEVELOPMENT, SPLICE, AND HOOK LENGTHS.



ONE INCH - IF NOT, SCALE ACCORDINGLY

AVRES

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(970) 223-5556

IMPACT BASIN DETAILS

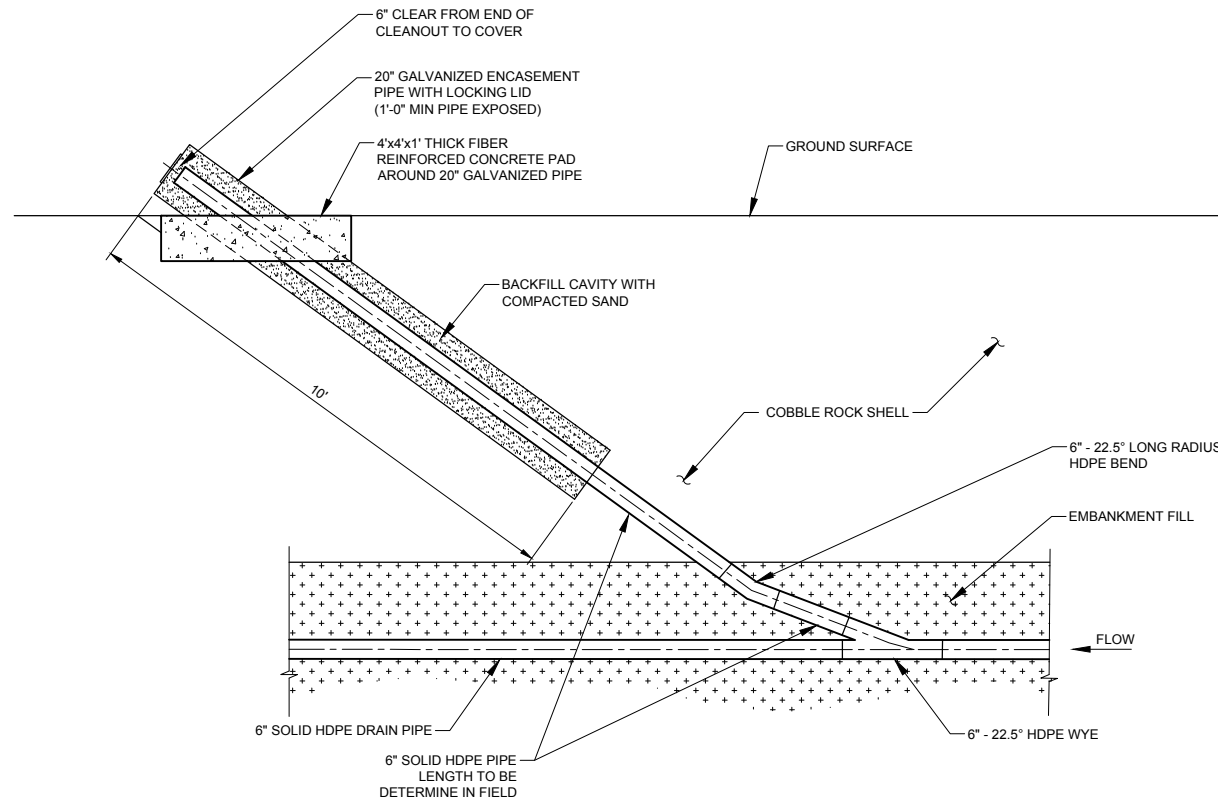
HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Date	Revisions

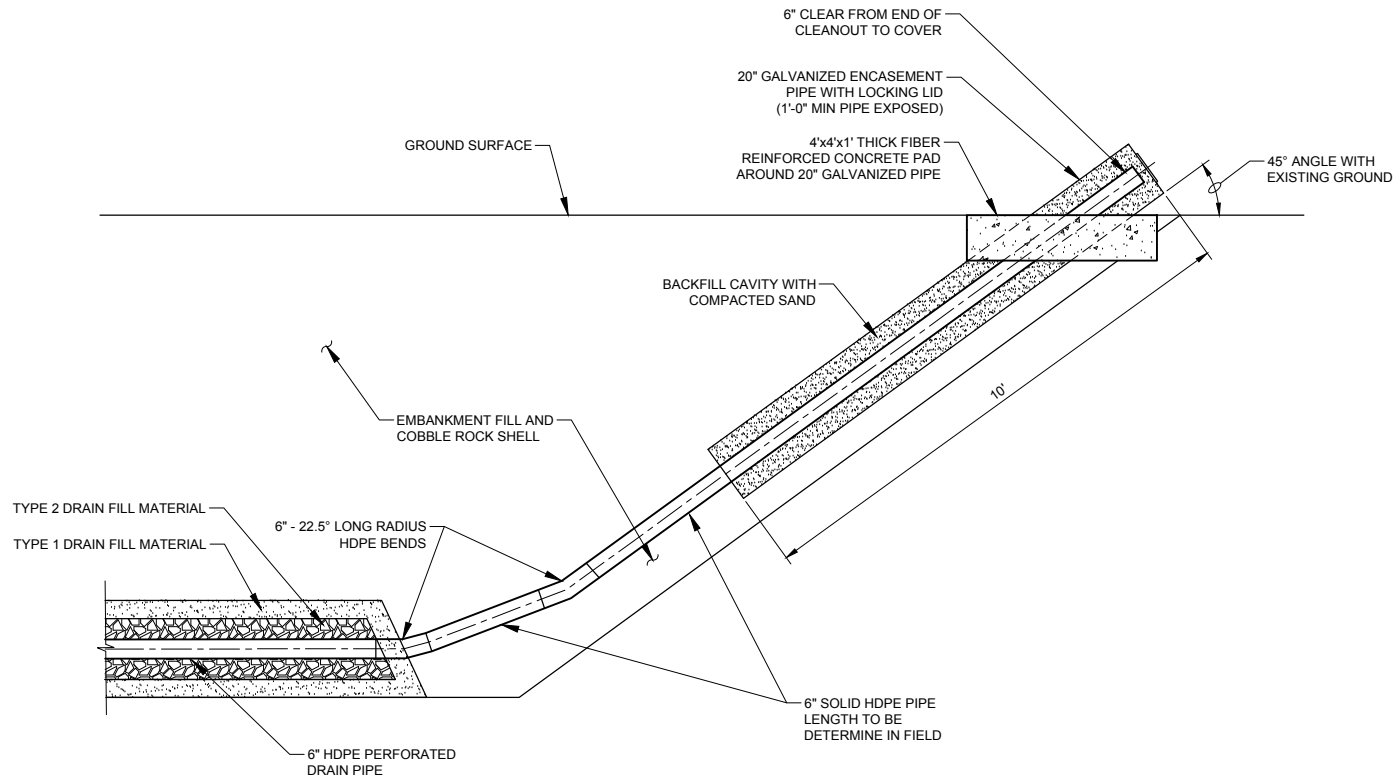
Project Mgr. CTG	Designed By: AJS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO. 26-1144.00
DRAWING NO. C36
SHEET 43 OF 44

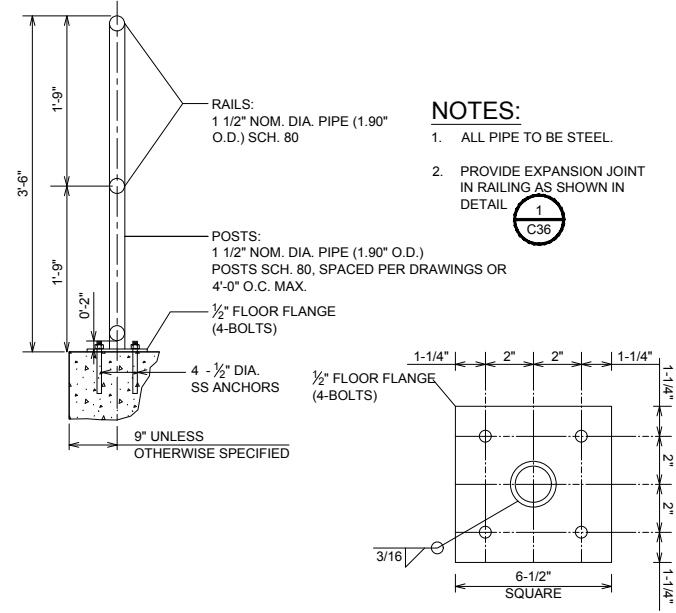
Drawing Name: I:\36\26-114400 GRAND JUNCTION HOGCHUTE DAM MAINDWGS 2020\SHEETS\C35 TOE DRAIN DETAILS.DWG Friday, May 07, 2021 1:54 PM By: RICKS, RONALD



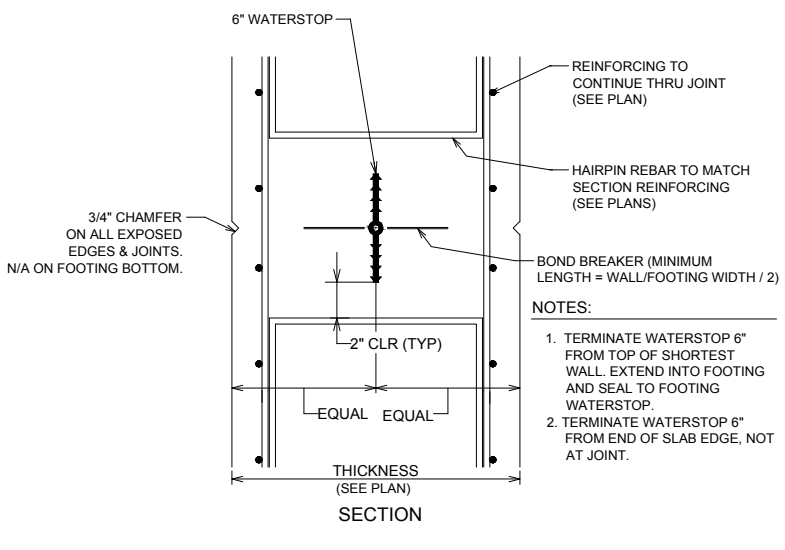
1
C37
HDPE DRAIN PIPE LATERAL CLEANOUT DETAIL
NOT TO SCALE



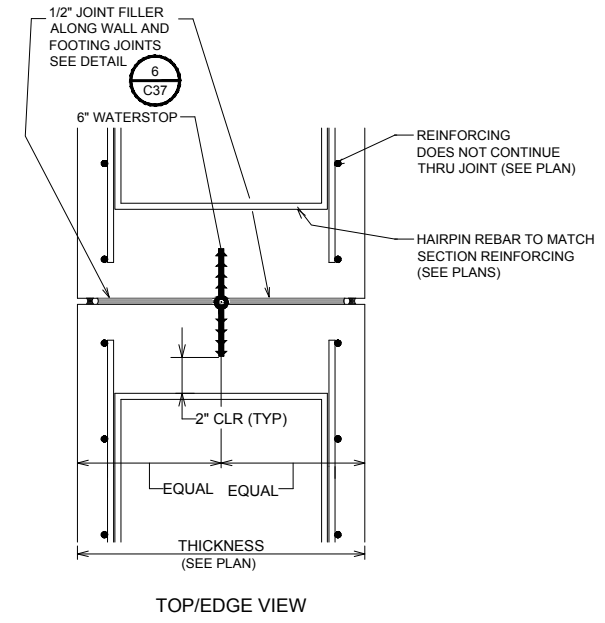
2
C37
HDPE DRAIN PIPE END ACCESS DETAIL
NOT TO SCALE



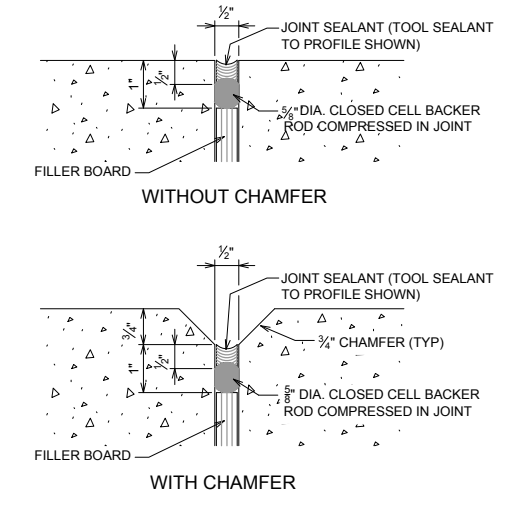
3
C37
SAFETY RAILING DETAIL
NOT TO SCALE



4
C37
WALL/FOOTING CONTRACTION JOINT DETAIL
(REINFORCEMENT PENETRATES JOINT) N.T.S.



5
C37
WALL/FOOTING EXPANSION JOINT DETAIL
(REINFORCEMENT DOES NOT PENETRATE JOINT) N.T.S.



6
C37
EXPANSION JOINT SEALANT DETAIL
N.T.S.



ONE INCH - IF NOT, SCALE ACCORDINGLY

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(970) 223-5556



MISCELLANEOUS DETAILS

HOGCHUTE (AKA CARSON)
RESERVOIR DAM REHABILITATION
CITY OF GRAND JUNCTION
MESA COUNTY, COLORADO

Revisions	Date

Project Mgr. CTG	Designed By: AUS	Drawn By: RBR	Approved By: TMR	Date: 05/10/21
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PROJECT NO. 26-1144.00
DRAWING NO. C37
SHEET 44 OF 44