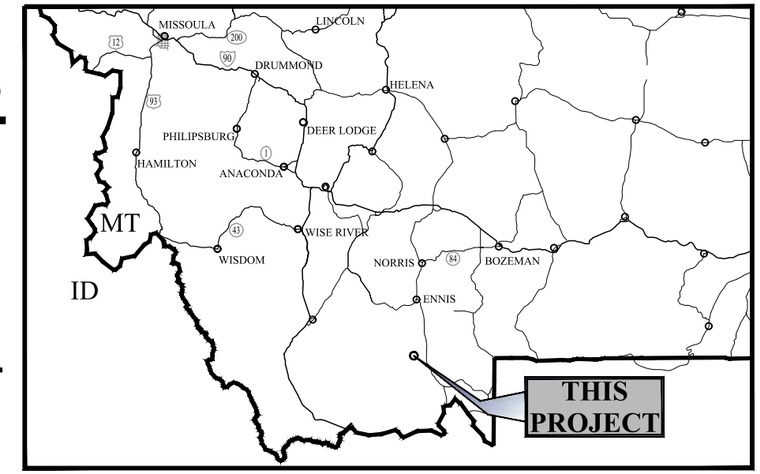
REGION ONE

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE, REGION ONE

PROPOSED PLANS FOR:

WALL CREEK FISH BARRIER

BEAVERHEAD - DEERLODGE NATIONAL FOREST
MADISON RANGER DISTRICT
MADISON COUNTY, MONTANA



SOUTH WESTERN MONTANA
SCALE: NO SCALE

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MONTANA MATTHEW D. BARNES No. 32934 PE 05/21/2018 LICENSED PROFESSIONAL ENGINEER

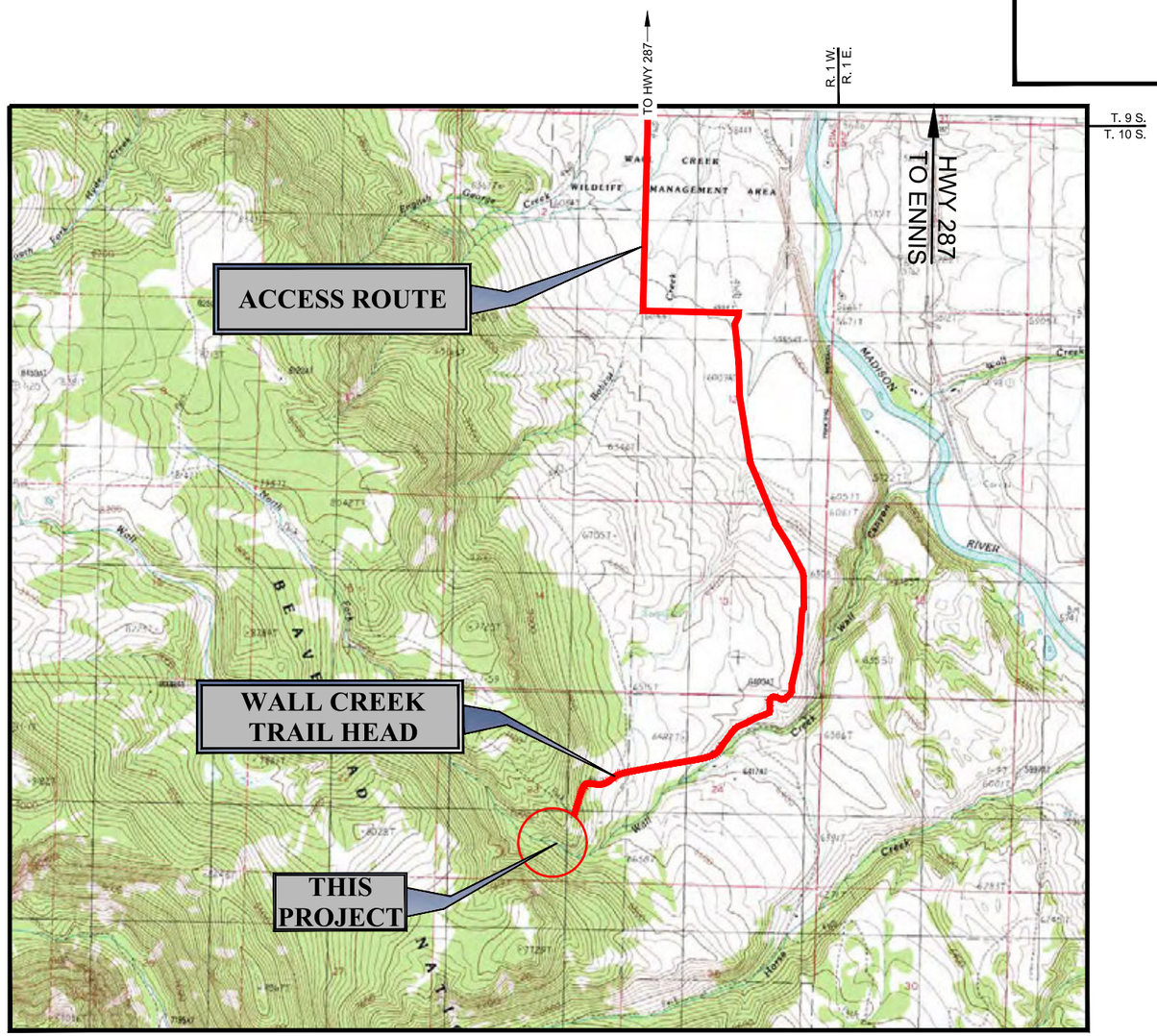
PROJECT MANAGER: MATTHEW D. BARNES

MONTANA MICHAEL J. BRENNAN 17311 PE 05/21/2018 REGISTERED PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER: MICHAEL J. BRENNAN

CONTRACTOR SUPPLIED:
ALL MATERIALS

GOVERNMENT FURNISHED:
N/A



SEC.23, T.10 S., R. 1 W.
VICINITY MAP
SCALE: NO SCALE

REVIEWED:

_____ DATE _____
FOREST ENGINEER
BEAVERHEAD - DEERLODGE NATIONAL FOREST

RECOMMENDED:

_____ DATE _____
MADISON DISTRICT RANGER
BEAVERHEAD - DEERLODGE NATIONAL FOREST

APPROVED:

_____ DATE _____
FOREST SUPERVISOR
BEAVERHEAD - DEERLODGE NATIONAL FOREST

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R:\105\107954 WALL CREEK\CAD\SHEETS\0 COVER SHEET.DWG PLOTTED BY:MATT BARNES ON May/24/2018

GENERAL NOTES

1. GEOTECHNICAL INVESTIGATION. A GEOTECHNICAL INVESTIGATION HAS NOT BEEN CONDUCTED AT THE PROJECT SITE.

2. SPECIFICATIONS. MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14 (U.S. CUSTOMARY UNITS) AND THE SUPPLEMENTAL SPECIFICATIONS INCLUDED IN THE CONTRACT.

3. MATERIAL QUANTITIES. ESTIMATED QUANTITIES ARE PROVIDED FOR INFORMATION ONLY. CONTRACTOR TO VERIFY QUANTITIES.

4. DEWATERING AND EROSION CONTROL. DEWATER AND PROTECT AGAINST SOIL EROSION AND SEDIMENTATION DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 157 AND PROJECT PERMITS. PREPARE AND SUBMIT A DEWATERING AND EROSION CONTROL PLAN TO C.O. FOR APPROVAL. GROUND DISTURBING WORK SHALL NOT COMMENCE UNTIL DEWATERING AND EROSION CONTROL PLAN HAS BEEN APPROVED IN WRITING BY THE C.O.

   CONTRACTOR SHOULD ANTICIPATE WATER INFILTRATING INTO EXCAVATIONS AND SHALL REMOVE WATER AS NECESSARY TO COMPLETE THE WORK (INCLUDING BUT NOT LIMITED TO MATERIAL PLACEMENT AND COMPACTION) IN ACCORDANCE WITH ALL CONTRACT REQUIREMENTS.

   WITH THE EXCEPTION OF TREE REMOVAL AND DEWATERING SYSTEM SET-UP WORK, ALL WORK (INCLUDING ALL MECHANIZED ACCESS) WITHIN THE STREAM CHANNEL SHALL OCCUR ONLY WHILE THE AREA AFFECTED BY THE WORK IS COMPLETELY DEWATERED. MINIMIZE OPERATION OF EQUIPMENT IN WET AREAS DURING TREE REMOVAL AND DEWATERING SYSTEM SET-UP.

   APPROVAL OF THE CONTRACTOR'S DEWATERING AND EROSION CONTROL PLAN BY THE C.O. DOES NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO MEET ALL CONTRACT REQUIREMENTS ASSOCIATED WITH DEWATERING AND EROSION CONTROL. IF THE METHODS INDENTIFIED BY THE CONTRACTOR IN THEIR DEWATERING AND SEDIMENT CONTROL PLAN FAIL TO PROVIDE CONDITIONS UNDER WHICH SPECIFIED CONSTRUCTION RESULTS CAN BE ACHIEVED, OR FAIL TO PROVIDE ENVIRONMENTAL PROTECTION AS PRESCRIBED IN THE CONTRACT OR PROJECT PERMITS, THE CONTRACTOR SHALL RE-EVALUATE AND SUBMIT A REVISED DEWATERING AND EROSION CONTROL PLAN TO THE C.O. PREPARATION OF REVISED PLAN(S) IS INCIDENTAL TO THE WORK.

5. TEMPORARY ACCESS ROUTES AND STAGING AREA. THE CONTACTOR SHALL USE THE ROUTES AND STAGING AREA SHOWN ON THE DRAWINGS AND STAKED IN THE FIELD BY THE C.O. ROUTE ADJUSTMENTS MAY BE MADE, SUBJECT TO C.O. APPROVAL. ACCESS THROUGH PRIVATE PROPERTY (KELLY RANCH) MUST ADHERE TO TERMS OF AGREEMENT WITH LANDOWNER. BRIDGE LOAD RATINGS ARE UNKNOWN AND IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ASSESS THE ADEQUACY OF ALL BRIDGES FOR CONSTRUCTION TRAFFIC.

   LOGS AND LARGE BOULDERS PREVENTING FREE PASSAGE ALONG ROUTE MAY BE MOVED BY THE CONTRACTOR, BUT SHALL BE REPLACED TO THEIR ORIGINAL POSITION DURING ROUTE REHABILITATION. ROUTE SHALL BE THE MINIMUM WIDTH REQUIRED FOR ONE-LANE TRAVEL TO AND FROM THE BARRIER SITE. STOCKPILE TOPSOIL AND SUBSOIL IN SEPARATE PILES AND IN LOCATIONS WHERE THEY WILL BE READILY ACCESSIBLE FOR USE IN ROUTE REHABILITATION. AVOID IMPACTING STREAMBANKS EXCEPT WHERE THE ROUTE ENTERS OR EXITS THE STREAM CHANNEL. THE PERIMETER OF THE EQUIPMENT/MATERIAL STAGING AREA WILL BE STAKED BY THE C.O.

   ALONG THE ACCESS ROUTE AND WITHIN THE STAGING AREA PERIMETER: SALVAGE/STOCKPILE EXISTING TOPSOIL AND BOULDERS AND REPLACE TOPSOIL AND BOULDERS ONCE CONSTRUCTION IS FINISHED IN ACCORDANCE WITH "CLEARING AND GRUBBING" NOTES BELOW. SCARIFY SUBSOIL TO A DEPTH OF 6-8" TO BREAK UP COMPACTION PRIOR TO REPLACING TOPSOIL. RESTORE STREAMBED AREAS TO PRE-PROJECT CONDITION.

6. SITE WORK AREA. THE SITE WORK AREA SHALL INCLUDE ALL AREAS WITHIN THE FINAL FOOTPRINT OF THE WORK AS SHOWN. APPROVED LIMITS OF EXCAVATION/BLASTING, AND APPROVED LIMITS OF EXCAVATED MATERIAL STORAGE. IN ADDITION, THE CONTRACTOR MAY UTILIZE THE SEGMENT OF DEWATERED STREAM CHANNEL EXTENDING DOWNSTREAM FROM STRUCTURE.

   THE PERIMETER OF THE SITE WORK AREA WILL BE STAKED BY THE C.O. NO GROUND DISTURBANCE SHALL TAKE PLACE OUTSIDE OF THE STAKED SITE WORK AREA UNLESS APPROVED BY THE C.O. ACTIVITIES PRE-APPROVED TO TAKE PLACE OUTSIDE OF THE SITE WORK AREA INCLUDE: 1) DEWATERING SYSTEM SETUP, MAINTENANCE, AND TAKE-DOWN, AND; 2) TREE AND LOG REMOVAL.

   THE PERIMETER OF THE SITE WORK AREA AND ALL DRAINAGE PATHS THAT MAY POTENTIALLY DRAIN TO SURFACE WATER SHALL BE SEPARATED FROM THE SURFACE WATER BY SILT FENCE OR OTHER C.O.-APPROVED SEDIMENT BARRIER. SILT FENCE MATERIAL AND INSTALLATION METHODS SHALL BE IN ACCORDANCE WITH THE APPROVED DEWATERING AND SEDIMENT CONTROL PLAN. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL PROVIDE SMOOTH GRADE TRANSITION FROM EXISTING GROUND TO NEW CONSTRUCTION AND REPLACE TOPSOIL AND DUFF ON HILLSLOPE AREAS IN ACCORDANCE WITH "CLEARING AND GRUBBING" NOTES BELOW. RESTORE STREAMBED AREAS TO PRE-PROJECT CONDITION.

7. CLEARING AND GRUBBING. CLEARING AND GRUBBING SHALL BE COMPLETED IN ACCORDANCE WITH SECTION 201. TREES SHALL BE REMOVED IN ACCORDANCE WITH SECTION 201 AND THE FOLLOWING NOTES. THIS WORK IS INCLUDED IN PAY ITEM 201-01.

   ALL EXISTING TOPSOIL SHALL BE SALVAGED TO A DEPTH OF 1 FT BELOW THE SURFACE FROM ALL AREAS TO BE DISTURBED BY EXCAVATION, BACKFILL, OR MATERIAL/EQUIPMENT STORAGE/OPERATION AND SHALL BE STOCKPILED SEPARATELY FROM OTHER MATERIALS. FOLLOWING CONSTRUCTION, SALVAGED TOPSOIL SHALL BE SPREAD EVENLY OVER ALL DISTURBED SURFACES TO PROVIDE A MINIMUM 4-IN. DEEP TOPSOIL LAYER. ADJACENT DUFF (LIVE AND DEAD VEGETATION MATERIAL) SHALL BE RAKED ONTO THE DISTURBED AREAS. CONSERVING AND REPLACING TOPSOIL AND PLACING DUFF IS INCLUDED IN PAY ITEM 201-01.

   BEFORE ALLOWING WATER TO POND UPSTREAM OF THE COMPLETED BARRIER, THE CONTRACTOR SHALL REMOVE ALL TREES AND LOGS LOCATED WITHIN THE UPSTREAM AREA TO BE INUNDATED WITH WATER. THE PERIMETER OF THE INUNDATION AREA WILL BE STAKED BY THE C.O. AT ELEVATION 6698 (IT EXTENDS APPROXIMATELY 40 FT UPSTREAM FROM BARRIER). TREES AND LOGS SHALL BE DISPOSED OF BY PLACING THEM ON THE HILLSLOPES ADJACENT TO THE STREAM CHANNEL, ABOVE ELEVATION 6703, IN LOCATIONS AND POSITIONS SUCH THAT THEY WILL NOT ENTER THE CHANNEL BY SLIDING OR ROLLING. IF NO SUCH LOCATIONS ARE LOCATED, TREES AND LOGS SHALL BE DISPOSED OF ON FLOODPLAIN OR HILLSIDES ADJACENT TO THE CHANNEL DOWNSTREAM FROM THE BARRIER, AS DIRECTED BY THE C.O. LOGS AND TREES WILL BE PLACED IN DISPERSED LOCATIONS, NOT IN CLUMPS OR PILES.

   LOGS AND TREES TO BE REMOVED ARE OF VARYING SIZE. TREES SHALL BE CUT, NOT PUSHED OVER. MACHINERY MAY BE OPERATED OUTSIDE OF THE SITE WORK AREA AS NECESSARY TO COMPLETE THE TREE REMOVAL AND DISPOSAL WORK. CONTRACTOR SHALL MINIMIZE DISTURBANCE OUTSIDE OF THE STAKED INUNDATION AREA PERIMETER. REMOVAL AND DISPOSAL OF TREES AND LOGS FROM WITHIN THE INUNDATION AREA WILL BE PAID FOR UNDER PAY ITEM 201-01.

8. CONTROL POINTS. EXISTING CONTROL POINTS ARE SHOWN ON THE DRAWINGS. CONTRACTOR SHALL LOCATE LAYOUT POINTS IN ACCORDANCE WITH SECTION 152. SECURE C.O. APPROVAL OF SURVEYED LAYOUT POINTS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. AFTER INSPECTION OF SURVEYED LAYOUT POINTS, THE C.O. MAY ADJUST THE LOCATION OF THE STRUCTURE (IN THE HORIZONTAL PLANE) UP TO 3 FEET TO FACILITATE EFFICIENT CONSTRUCTION AND/OR IMPROVE STRUCTURAL STABILITY OF THE BARRIER.

9. STRUCTURE EXCAVATION. COMPLETE STRUCTURE EXCAVATION IN ACCORDANCE WITH SECTION 208. STRUCTURE EXCAVATION INCLUDES BEDROCK EXCAVATION AND BLASTING.

   ESTIMATED STRUCTURE EXCAVATION QUANTITY IS FOR INFORMATIONAL PURPOSES ONLY. ESTIMATED QUANTITY IS BASED ON AN ASSUMPTION OF THE EXTENT OF EXISTING BEDROCK AND PRESENCE OF SOIL TYPE C (GRANULAR SOILS) WITH MAXIMUM ALLOWABLE SLOPE ON EXCAVATION WALLS OF 1.5:1 (HORIZONTAL:VERTICAL) AND SOME SHORING OF EXCAVATION WALLS AT WEST ENDS OF CONTAINMENT WALLS IN ACCORDANCE WITH: *OSHA-EXCAVATIONS, 1926 SUBPART P, APPENDIX A - SOIL CLASSIFICATION AND OSHA-EXCAVATIONS, 1926 SUBPART P, APPENDIX B - SLOPING AND BENCHING.* CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES BASED ON THEIR OWN EXCAVATION PLAN.

   CONTRACTOR SHALL SUBMIT AN EXCAVATION PLAN TO THE C.O. FOR APPROVAL. PLAN SHALL INCLUDE DRAWINGS AND WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED EXCAVATION LIMITS, METHODS, EQUIPMENT, LOCATION OF STOCKPILES, AND ESTIMATED QUANTITIES AND SHALL COMPLY WITH OSHA EXCAVATION SOIL TYPING AND REQUIREMENTS.

   IF BLASTING IS UTILIZED TO REMOVE BEDROCK, BLASTING SHALL BE IN ACCORDANCE WITH SECTION 205. CONTRACTOR SHALL SUBMIT A BLASTING PLAN MEETING THE REQUIREMENTS OF SECTION 205 TO THE C.O. FOR APPROVAL.

   IN ACCORDANCE WITH SECTION 208.04, WHEN EXCAVATION IS COMPLETE REQUEST APPROVAL AS TO THE CHARACTER AND SUITABILITY OF THE FOUNDATION MATERIAL (INCLUDING BEDROCK). DO NOT PLACE STRUCTURAL BACKFILL, BEDDING MATERIAL, CONCRETE, OR RIPRAP UNTIL C.O. APPROVAL OF THE FOUNDATION MATERIAL HAS BEEN OBTAINED.

10. GENERAL BACKFILL. EXCAVATED MATERIAL RESULTING FROM STRUCTURE EXCAVATION AND BLASTING SHALL BE UTILIZED AS RIPRAP (IF SUITABLE) OR AS GENERAL BACKFILL AROUND AND UPSTREAM OF THE BARRIER. GENERAL FILL SHALL BE INSTALLED IN ACCORDANCE WITH "GENERAL FILL - LAYER PLACEMENT METHOD." (SUBSECTION 204.14).

    HAULING, PLACEMENT, AND COMPACTION OF GENERAL FILL IS INCLUDED IN PAY ITEMS 204-31 AND 204-32.

11. STRUCTURAL BACKFILL. ALL BACKFILL PLACED WITHIN 4 FEET OF REINFORCED CONCRETE WALLS, SLABS, AND FOOTINGS, AND ALL BACKFILL PLACED BENEATH THE CONCRETE BARRIER STRUCTURE SLAB, FOOTINGS, AND RIPRAP, SHALL BE STRUCTURAL BACKFILL PLACED AND COMPACTED IN ACCORDANCE WITH SECTION 208 AND SUBSECTION 704.04. EXCEPTION: ALL BACKFILL PLACED AGAINST THE UPSTREAM FACE OF THE UPSTREAM WALL SHALL BE STRUCTURAL BACKFILL WITH TOP ELEVATION 6691.75 THAT GRADES AWAY FROM THE WALL IN THE UPSTREAM DIRECTION AT A 2:1 (H:V) SLOPE AS SHOWN ON THE DRAWINGS.

    THE CONTRACTOR SHALL FURNISH STRUCTURAL BACKFILL MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 704.04 IN THE QUANTITY REQUIRED TO COMPLETE THE WORK AS SHOWN AND SPECIFIED. MATERIAL FURNISHED BY THE CONTRACTOR SHALL ORIGINATE FROM COMMERCIAL SOURCES MEETING THE REQUIREMENTS OF SUBSECTION 105.02. FURNISHING OF STRUCTURAL BACKFILL SHALL BE INCIDENTAL TO PAY ITEM 208-03. NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING STRUCTURAL BACKFILL MATERIAL.

    COMPACTION OF STRUCTURAL BACKFILL SHALL COMPLY WITH SUBSECTION 208.11. SUBSECTION 208.11 REQUIREMENTS INCLUDE, BUT ARE NOT LIMITED TO, DETERMINATION OF OPTIMUM MOISTURE CONTENT AND MAXIMUM DENSITY, ADJUSTMENT OF MOISTURE CONTENT, COMPACTION, AND IN-PLACE TESTING OF DENSITY AND MOISTURE CONTENT. ALL WORK SPECIFIED IN SUBSECTION 208.11 IS INCLUDED IN PAY ITEM 208-03.

12. REINFORCED CONCRETE. SEE STRUCTURAL NOTES.

13. RIPRAP. ALL SUITABLE MATERIAL GENERATED BY EXCAVATION AND BLASTING SHALL BE UTILIZED AS RIPRAP. IN ADDITION, CONTRACTOR MAY SALVAGE SUITABLE MATERIAL FOR USE AS RIPRAP FROM THE STREAM CHANNEL BED FOR A DISTANCE OF 40 FEET UPSTREAM OF THE UPSTREAM BARRIER WALL. WHEN SALVAGING MATERIAL FOR USE AS RIPRAP DO NOT REMOVE MATERIAL FROM THE BASE OF STEEP STREAMSIDE HILLSLOPES.

    INCORPORATE SALVAGED OVER-SIZE BOULDERS INTO RIPRAP AREAS BY OVER- EXCAVATING IN BOULDER LOCATIONS SUCH THAT TOP OF BOULDER DOES NOT PROTRUDE ABOVE THE FINAL SURFACE GRADE SHOWN FOR THE RIPRAP AREA.

SUMMARY OF QUANTITIES

Pay Item	Description	Unit	Quantity
15101	**Mobilization**	*LS*	*1*
15102	**Temporary Route Improvements and Restoration**	*LS*	*1*
15201	**Construction Survey and Staking**	*LS*	*1*
15713	**Soil Erosion & Pollution Control (includes diversion & dewatering)**	*LS*	*1*
20101	**Clearing and Grubbing, Disposal Method C**	*LS*	*1*
20431	**General Fill, Layer Placement**	*LS*	*1*
20432	**General Fill, Upstream Placement**	*LS*	*1*
20701	**Earthwork geosynthetics, Type 2A**	*SY**	*85*
20801	**Structure Excavation**	*CY**	*640*
20803	**Structural Backfill**	*CY**	*635*
20804	**Bedding**	*CY**	*20*
25101	**Placed Riprap, Class 5**	*CY**	*85*
25107	**Grouted Riprap, Class G**	*CY**	*40*
25803	**Reinforced Concrete Retaining Wall, Slab, and Footing**	*CY**	*70*
62201	**Rental Equipment, Excavator**	*HR*	*8*
62301	**General Labor**	*HR*	*8*

* DENOTES CONTRACT QUANTITY, ESTIMATE OF QUANTITY FOR INFORMATION ONLY.

Montana Fish, Wildlife & Parks

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FOREST SERVICE — U.S. DEPARTMENT OF AGRICULTURE — REGION ONE

WALL CREEK FISH BARRIER
ESTIMATED QUANTITIES & GENERAL NOTES

Designed By:MDB	Design Checked:MDB
Drawn By:DAH	Drawing Checked:DAH

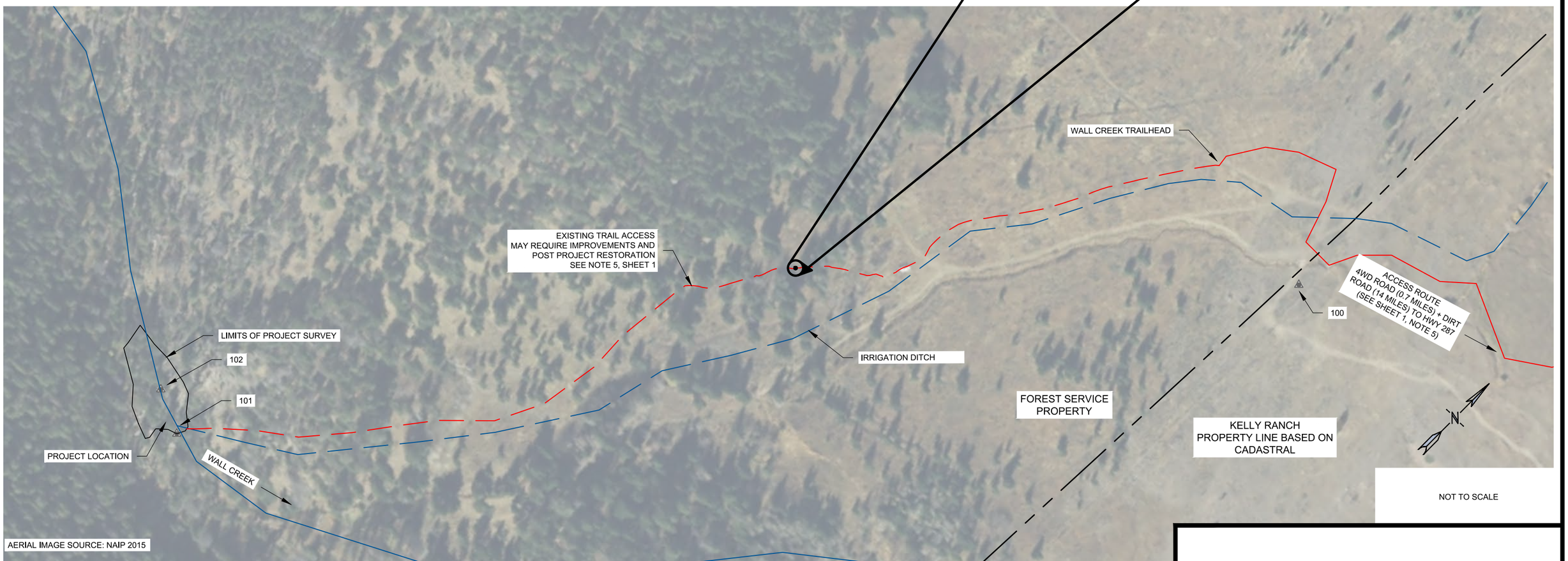
R:\1051\07954 WALL CREEK\ACAD\SHEETS\1 ESTIMATED QUANTITIES & GENERAL NOTES.DWG PLOTTED BY:DAVID A. HALLSTEN ON May/18/2018

CONTROL TABLE

HORIZONTAL DATUM: MONTANA COORDINATE SYSTEM, NAD83(2011) ZONE 2500				
VERTICAL DATUM: NAVD88			(GEOID 12B)	
UNITS: INTERNATIONAL FEET				
CONTROL POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	262367.15	1404410.96	6583.19	CP-BASE
101	260509.47	1402988.13	6687.51	CP
102	260550.90	1402900.06	6702.80	CP

SURVEY NOTES:

1. THE CONTROL SURVEY WAS CONDUCTED BY MORRISON-MAIERLE, INC. (MM), ON JUNE 27, 2017 USING GNSS STATIC METHODS OF SURVEY, AND PROCESSED USING THE NATIONAL GEODETIC SURVEY'S ON-LINE POSITIONING USER SERVICE (OPUS).



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WALL CREEK FISH BARRIER
LOCATION & ACCESS PLAN

Designed By:MDB	Design Checked:MDB	Sheet: 2 of 13
Drawn By:DAH	Drawing Checked:DAH	

R:\1051\07954 WALL CREEK\ACAD\SHEETS\2 EXISTING SITE & ACCESS PLAN.DWG PLOTTED BY:DAVID A. HALLSTEN ON May/17/2018

NOTES:

1. BOULDER LOCATIONS, SHAPES, AND SITES ARE APPROXIMATE BASED ON SURVEY AND SITE OBSERVATIONS.

EXISTING SITE: APPROXIMATE STRUCTURE LOCATION

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WALL CREEK FISH BARRIER
EXISTING SITE

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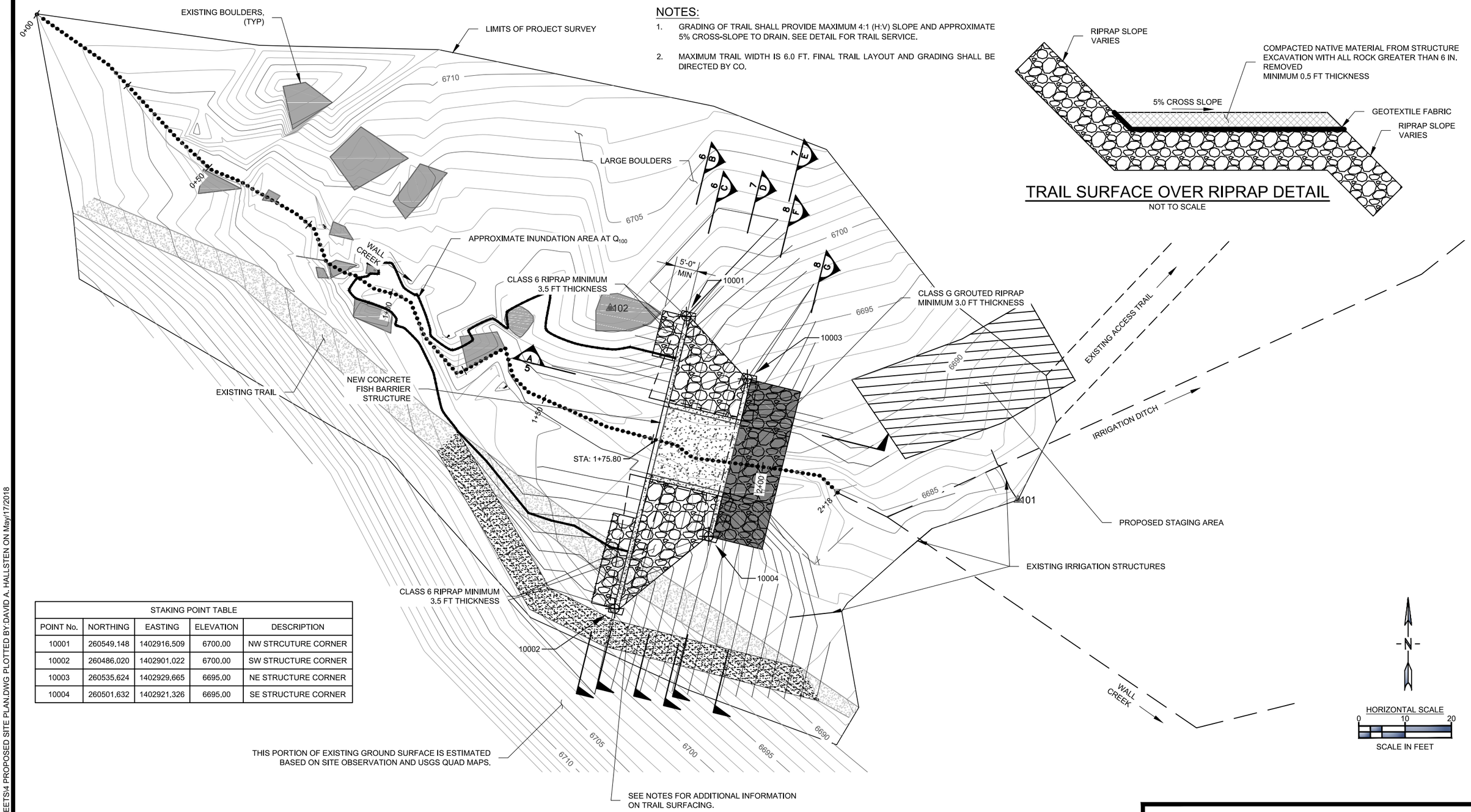
Drawn By:DAH	Drawing Checked:DAH	

R:\105\107954 WALL CREEK\ACAD\SHEETS\3 EXISTING SITE.DWG PLOTTED BY:DAVID A. HALLSTEN ON May/18/2018

NOTES:

1. GRADING OF TRAIL SHALL PROVIDE MAXIMUM 4:1 (H:V) SLOPE AND APPROXIMATE 5% CROSS-SLOPE TO DRAIN. SEE DETAIL FOR TRAIL SERVICE.
2. MAXIMUM TRAIL WIDTH IS 6.0 FT. FINAL TRAIL LAYOUT AND GRADING SHALL BE DIRECTED BY CO.



TRAIL SURFACE OVER RIPRAP DETAIL

NOT TO SCALE

STAKING POINT TABLE				
POINT No.	NORTHING	EASTING	ELEVATION	DESCRIPTION
10001	260549.148	1402916.509	6700.00	NW STRCUTURE CORNER
10002	260486.020	1402901.022	6700.00	SW STRUCTURE CORNER
10003	260535.624	1402929.665	6695.00	NE STRUCTURE CORNER
10004	260501.632	1402921.326	6695.00	SE STRUCTURE CORNER

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WALL CREEK FISH BARRIER
PROPOSED SITE PLAN

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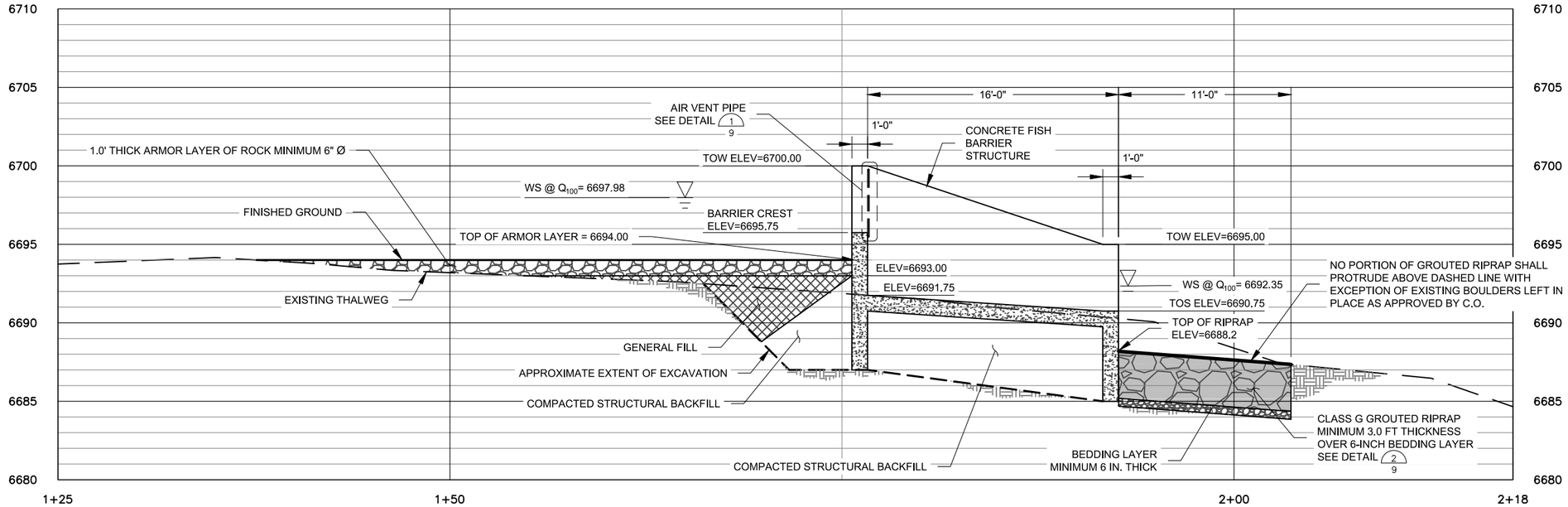
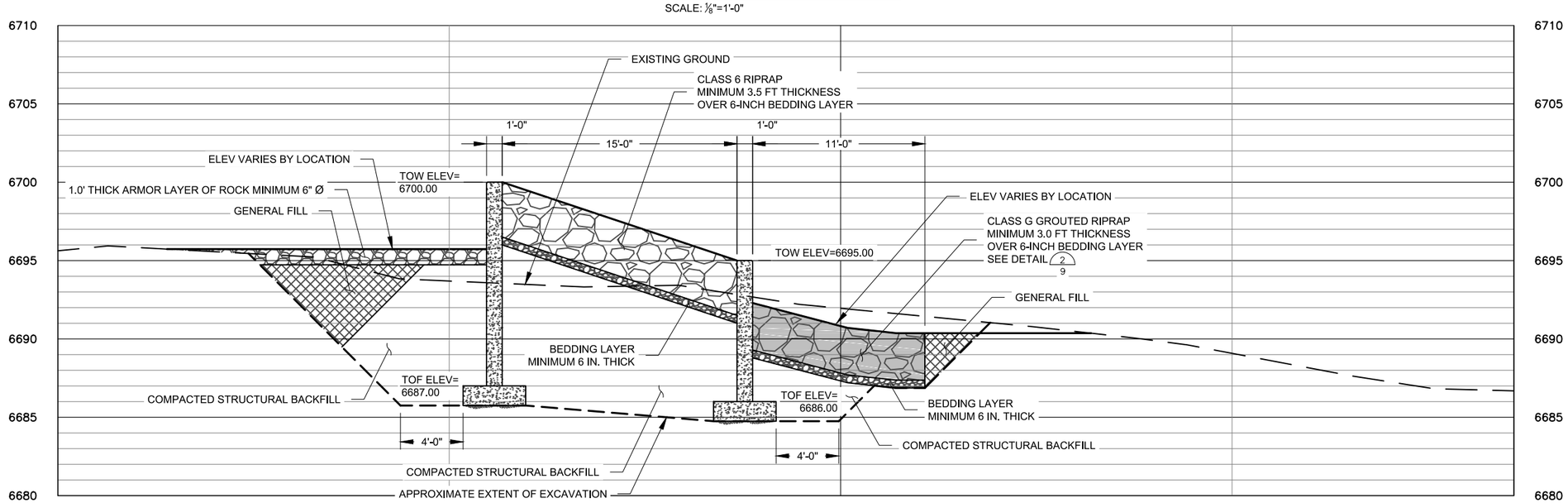


STRUCTURE PROFILE

SCALE: ⅛"=1'-0"



ABUTMENT SECTION A/4

SCALE: ⅛"=1'-0"

GENERAL NOTES:

1. SEE STRUCTURAL PLANS FOR WALL, SLAB, AND FOOTER ELEVATIONS.
2. ALL RIPRAP SHALL HAVE VOIDS FILLED WITH SALVAGED TOP SOIL TO MINIMUM 0.5 FT THICK.
3. ALL FILL PLACED WITHIN 4.0' OF CONCRETE SHALL BE COMPACTED STRUCTURAL BACKFILL.

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WALL CREEK FISH BARRIER
STRUCTURE PROFILE

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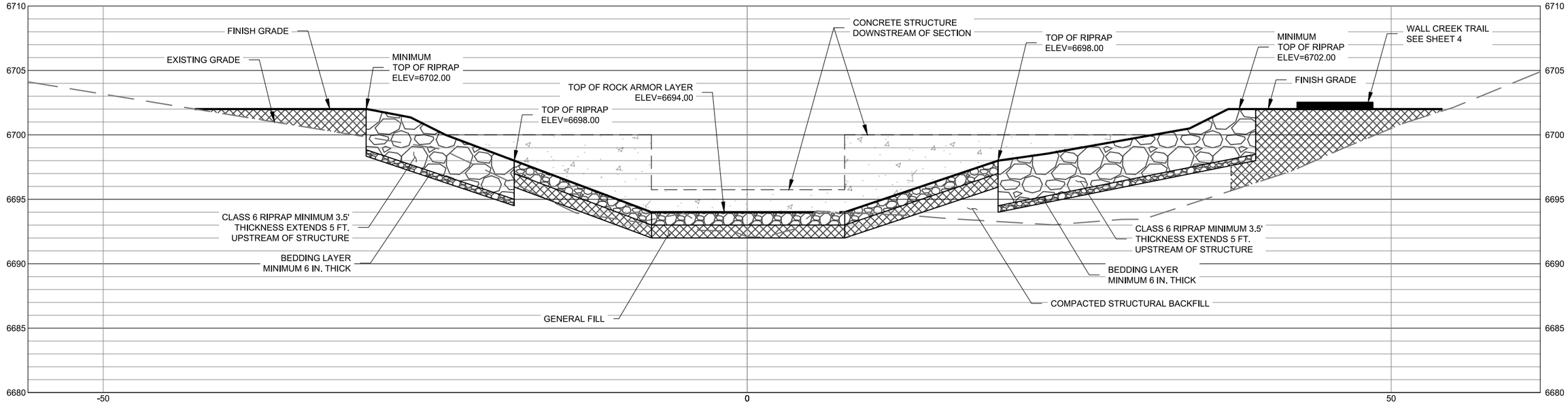
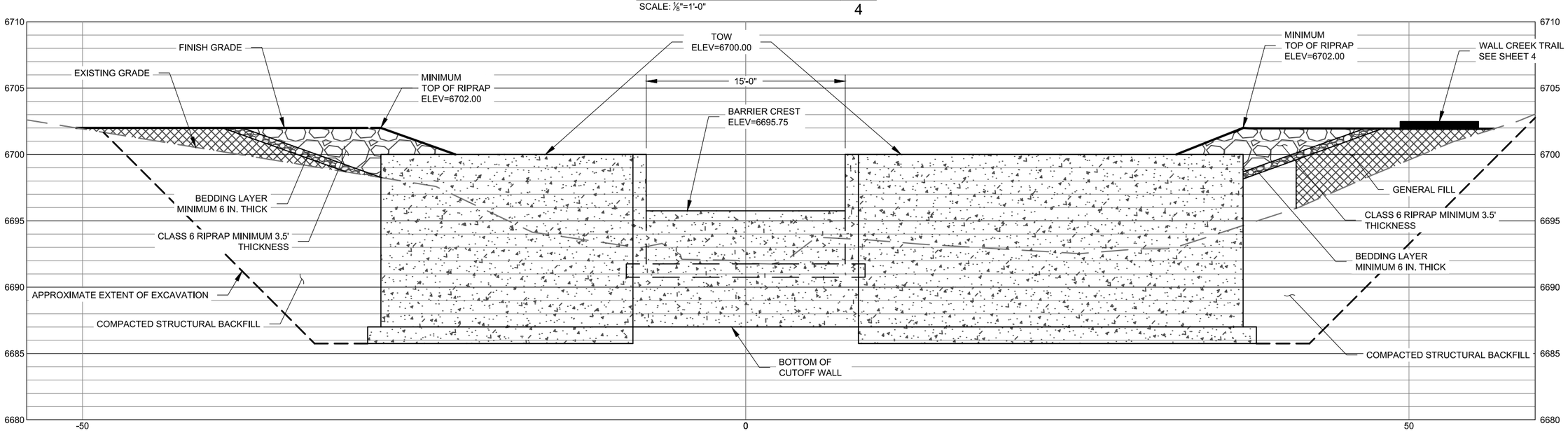
Drawn By:DAH	Drawing Checked:DAH

Sheet: **5** of **13**

R:\105\107954 WALL CREEK\ACAD\SHEETS\5 STRUCTURE PROFILE & CROSS SECTIONS.DWG PLOTTED BY:DAVID A. HALLSTEN ON May/18/2018



STA. 1+72
CROSS SECTION B 4
SCALE: 1/8"=1'-0"



STA. 1+76
CROSS SECTION C 4
SCALE: 1/8"=1'-0"

GENERAL NOTES:

1. SEE STRUCTURAL PLANS FOR WALL, SLAB, AND FOOTER ELEVATIONS.
2. ALL RIPRAP SHALL HAVE VOIDS FILLED WITH SALVAGED TOP SOIL TO MINIMUM 0.5 FT THICK.
3. ALL FILL PLACED WITHIN 4.0' OF CONCRETE SHALL BE COMPACTED STRUCTURAL BACKFILL.

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WALL CREEK FISH BARRIER
STRUCTURE CROSS SECTIONS

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Drawn By:DAH	Drawing Checked:DAH	

R:\105\07954 WALL CREEK\ACAD\SHEETS\6 STRUCTURE CROSS SECTIONS.DWG PLOTTED BY:DAVID A. HALLSTEN ON May/18/2018