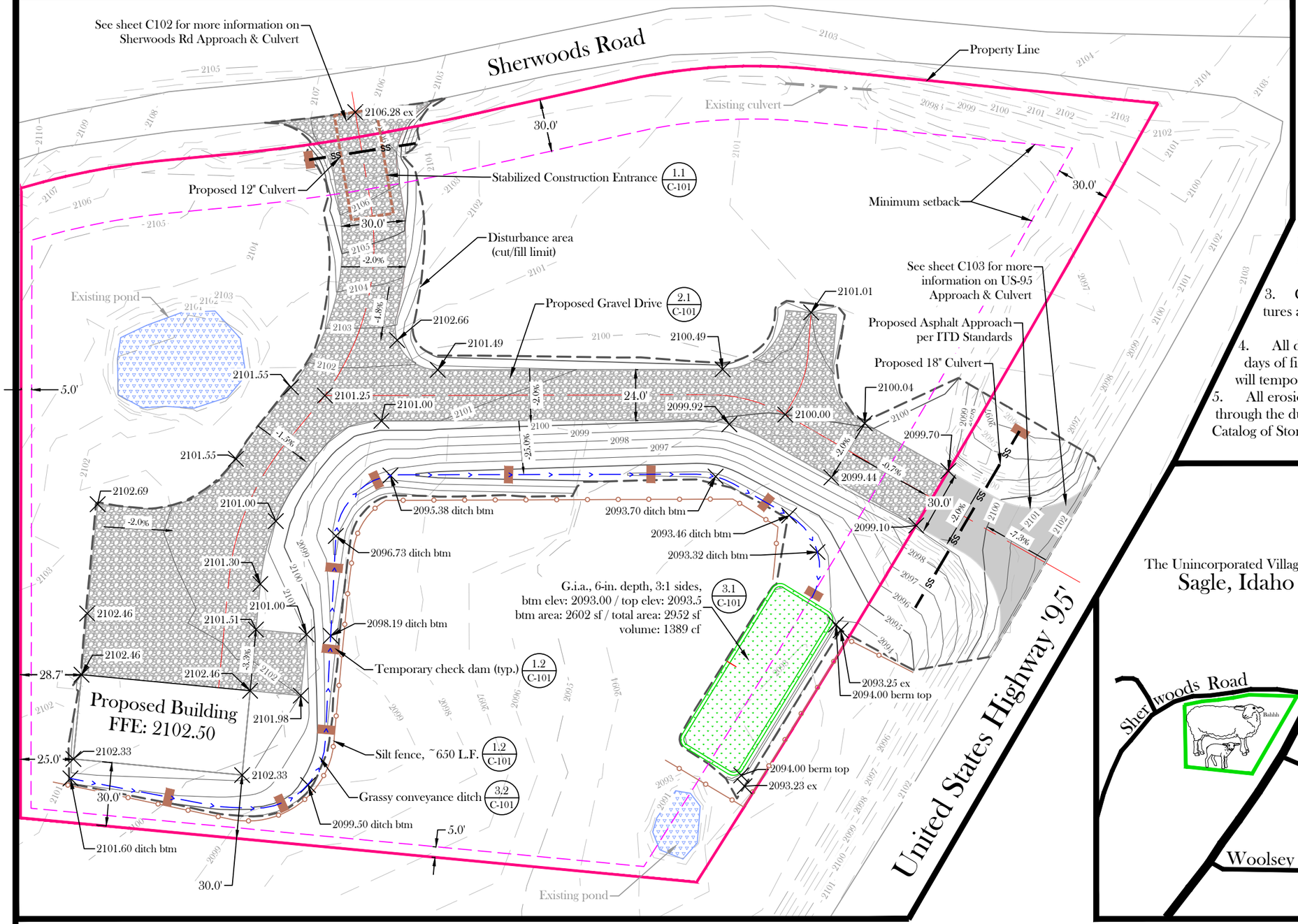
90 Sherwoods Road

RP025010000020A

The Woolshire Manufactory

Site, Grading, Stormwater, and Erosion Control Plan

September 12th, 2024



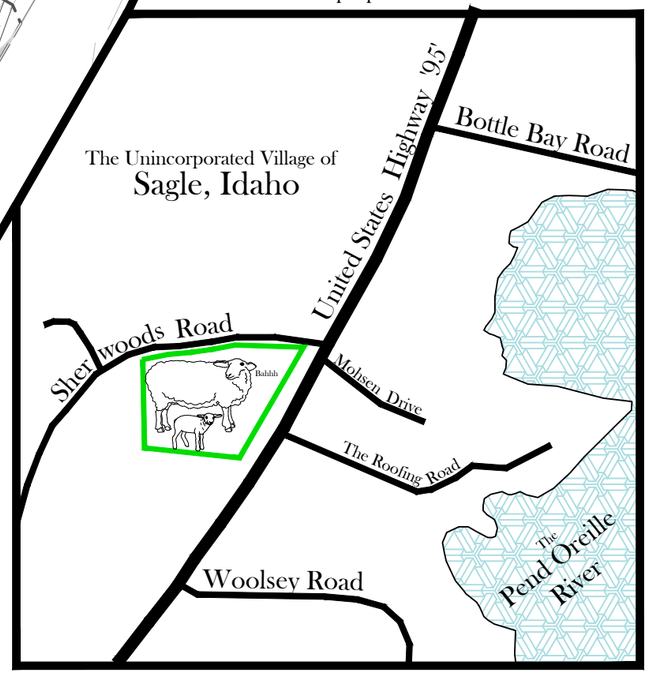
1.1 Grading, Stormwater, and Erosion Control Plan

Construction Schedule:

Grading and Sitework -	Sept 2024
Building Construction -	Sept - Nov 2024
Sherwoods Approach & Driveway	Sept - Nov 2024
Stormwater Management System	Sept - Nov 2024
ITD Approach -	June - July 2025
Final Stabilization -	Aug 2025

General Notes:

1. Work in US-95 Right-of-way subject to ITD Approach Permit approval.
2. All work shall conform to the 2020 Idaho Standards for Public Works Construction, Bonner County County Code, and IDAPA 39.03.42.
3. Contractor to field verify existing site features and topography shown herein and notify Engineer of any discrepancies.
4. All disturbed areas to be reseeded within ten days of final grading or when construction activity will temporarily cease for more than fourteen days.
5. All erosion control measures shall be maintained through the duration of the project. Consult the Idaho Catalog of Storm Water Best Managment Practices for proper installation and maintenance.



1.2 Vicinity Map (Not to scale)

N

0 2.5 5 50

1 inch = 50 feet

Prior to digging,

*Please call 911 for emergencies

Disclaimer

The Woolshire Manufactory in Sagle, Idaho

Project Title

Drawing Date

September 12th, 2024

Jedediah Sachen, PE

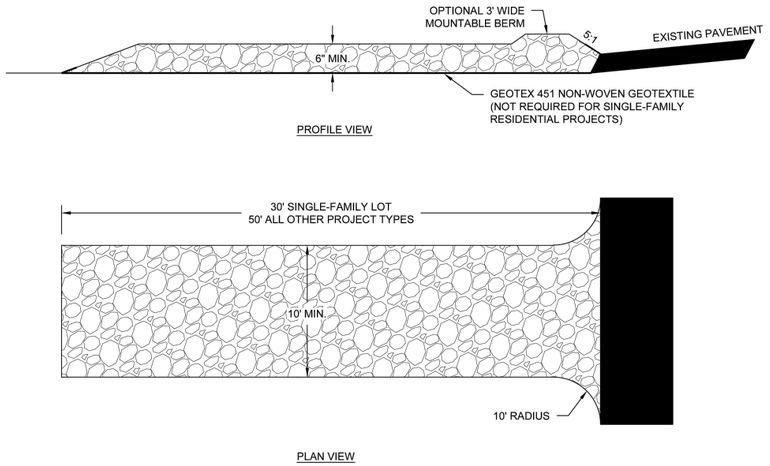
Prepared By

Grading, Stormwater, & Erosion Control Plan

Sheet Title

"C-100"

Sheet (1 of 5)

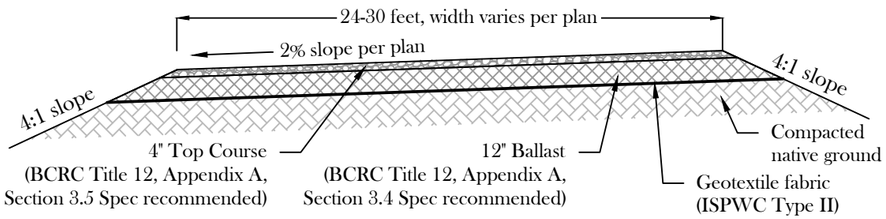


- USE 2" STONE OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT
- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES IS ALLOWED.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY OR ADJACENT STREET. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY OR ADJACENT STREET MUST BE REMOVED IMMEDIATELY.
- WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY OR ADJACENT STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND ASSOCIATED MAINTENANCE SHALL BE PROVIDED AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT.

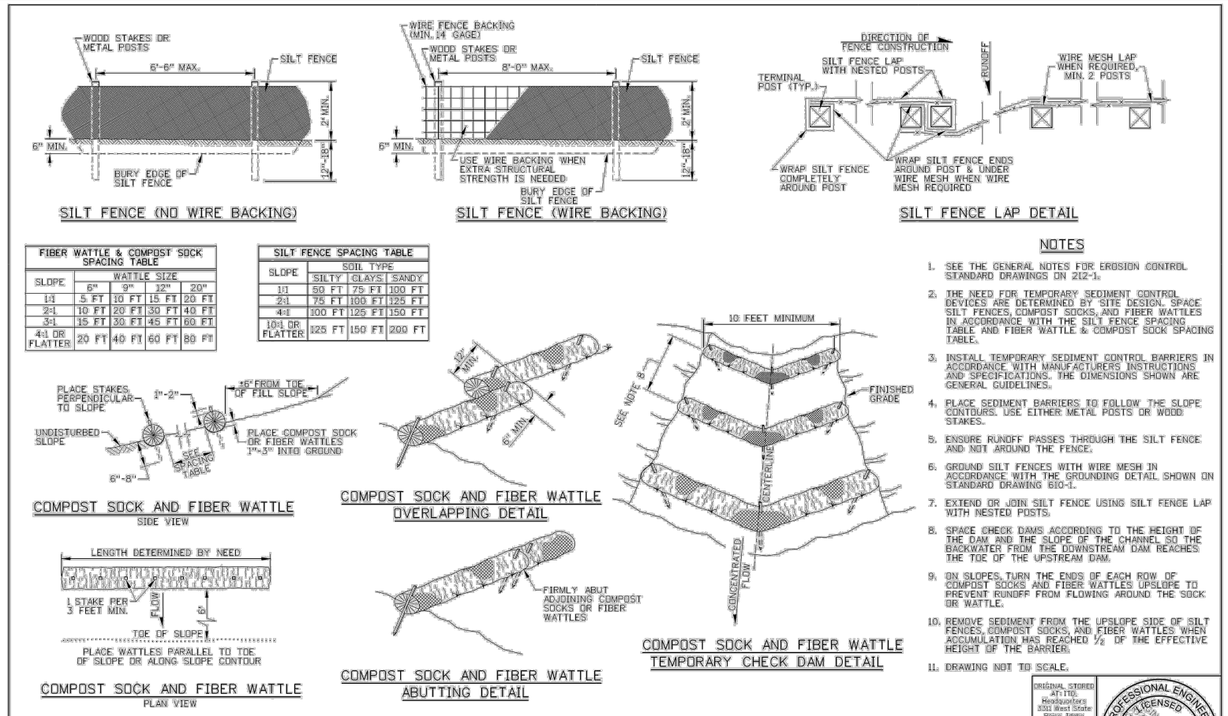
1.1 Stabilized Construction Entrance
(Not to Scale)

Gravel Drive Notes:

1. Clear and grub to clear subgrade (no organic material), 12-inch minimum depth
2. Install and compact subgrade materials in 6-inch max. lifts
3. Subgrade to be compacted to 95% Standard Proctor Maximum Density (ASTM D-698)



2.1 Gravel Drive Cross Section
(Not to Scale)



FIBER WATTLE & COMPOST SOCK SPACING TABLE				
SLOPE	WATTLE SIZE			
	6"	9"	12"	20"
1:1	5 FT	10 FT	15 FT	20 FT
2:1	10 FT	20 FT	30 FT	40 FT
3:1	15 FT	30 FT	45 FT	60 FT
4:1 OR FLATTER	20 FT	40 FT	60 FT	80 FT

SILT FENCE SPACING TABLE			
SLOPE	SOIL TYPE		
	SILTY	CLAYEY	SANDY
1:1	50 FT	75 FT	100 FT
2:1	75 FT	100 FT	125 FT
4:1	100 FT	125 FT	150 FT
10:1 OR FLATTER	125 FT	150 FT	200 FT

NOTES

1. SEE THE GENERAL NOTES FOR EROSION CONTROL STANDARD DRAWINGS ON 212-1.
2. THE NEED FOR TEMPORARY SEDIMENT CONTROL DEVICES ARE DETERMINED BY SITE DESIGN. SPACE SILT FENCES, COMPOST SOCKS, AND FIBER WATTLES IN ACCORDANCE WITH THE SILT FENCE SPACING TABLE AND FIBER WATTLE & COMPOST SOCK SPACING TABLE.
3. INSTALL TEMPORARY SEDIMENT CONTROL BARRIERS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS. THE DIMENSIONS SHOWN ARE GENERAL GUIDELINES.
4. PLACE SEDIMENT BARRIERS TO FOLLOW THE SLOPE CONTOURS. USE EITHER METAL POSTS OR WOOD STAKES.
5. ENSURE RUNOFF PASSES THROUGH THE SILT FENCE AND NOT AROUND THE FENCE.
6. GROUND SILT FENCES WITH WIRE MESH IN ACCORDANCE WITH THE GROUNDING DETAIL SHOWN ON STANDARD DRAWING 610-1.
7. EXTEND OR JOIN SILT FENCE USING SILT FENCE LAP WITH NESTED POSTS.
8. SPACE CHECK DAMS ACCORDING TO THE HEIGHT OF THE DAM AND THE SLOPE OF THE CHANNEL SO THE BACKWATER FROM THE DOWNSTREAM DAM REACHES THE TOE OF THE UPSTREAM DAM.
9. ON SLOPES, TURN THE ENDS OF EACH ROW OF COMPOST SOCKS AND FIBER WATTLES UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE SOCK OR WATTLE.
10. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF SILT FENCES, COMPOST SOCKS, AND FIBER WATTLES WHEN ACCUMULATION HAS REACHED ½ OF THE EFFECTIVE HEIGHT OF THE BARRIER.
11. DRAWING NOT TO SCALE.

REVISIONS												
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY	
1	09-93	MSM	6	01-13	RDL							
2	12-94	MSM	7	03-21	TWF							
3	06-98	GFK										
4	10-10	KEM										
5	10-11	KEM										

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME= 212-03_0421.dgn

DRAWING DATE= APRIL, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN

DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

TEMPORARY EROSION AND SEDIMENT CONTROL

SILT FENCE, FIBER WATTLE, AND COMPOST SOCK

REQUIRES STD. DWG. 212-1

English

STANDARD DRAWING NO. 212-3

SHEET 1 OF 1

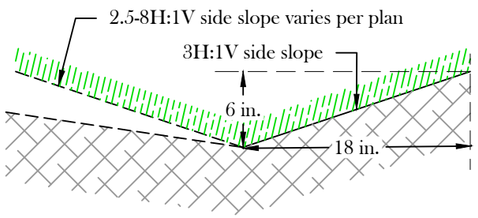
ORIGINAL STORED AT ITD, Headquarters 3311 West State Boise, Idaho

PROFESSIONAL ENGINEER LICENSED 13683 STATE OF IDAHO RYAN D. LANCASTER

1.2 Silt Fence and Temporary Check Dams
(Not to Scale)

Maintenance Notes:

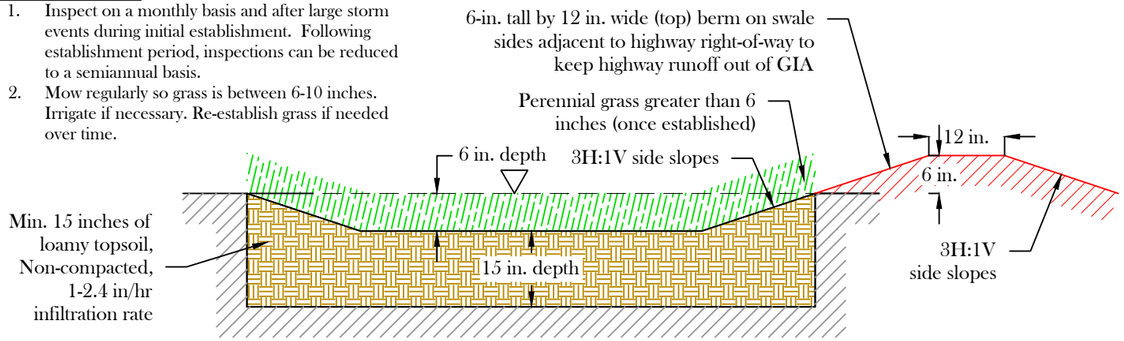
1. Inspect on a monthly basis and after large storm events during initial establishment. Following establishment period, inspections can be reduced to a semiannual basis. Reseed barespots if necessary.
2. Install and maintain ditch checks every fifty feet until grass cover is established.



3.1 Grassy Conveyance Ditch
(Not to Scale)

Maintenance Notes:

1. Inspect on a monthly basis and after large storm events during initial establishment. Following establishment period, inspections can be reduced to a semiannual basis.
2. Mow regularly so grass is between 6-10 inches. Irrigate if necessary. Re-establish grass if needed over time.



3.2 Grassy Infiltration Area (G.I.A)
(Not to Scale)

Prior to digging,

*Please call 911 for emergencies

Disclaimer

The Woolshire Manufactory in Sagle, Idaho

Project Title

Drawing Date

September 12th, 2024

PROFESSIONAL ENGINEER LICENSED P-21905 9-12-24 STATE OF IDAHO JEDEDIAH W. SACHEN

Jedediah Sachen, PE

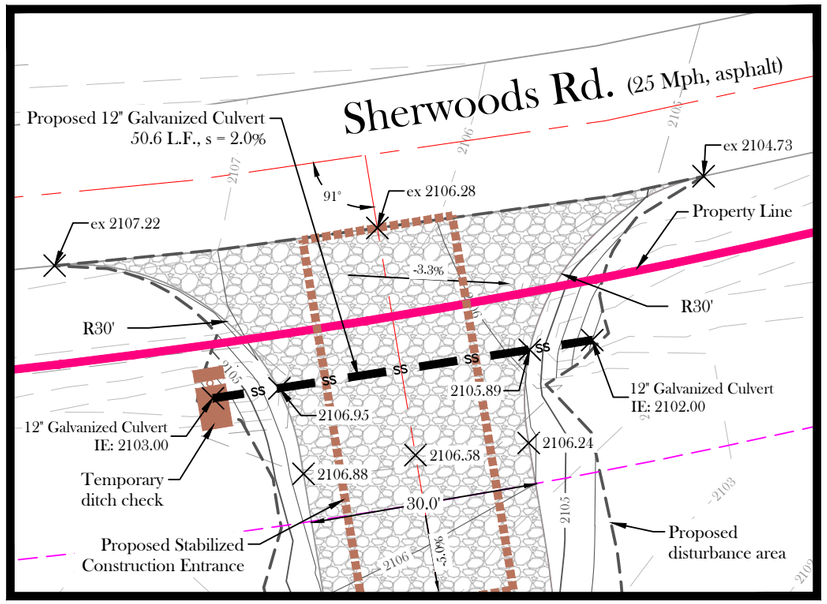
Prepared By

Construction Details

Sheet Title

"C-101"

Sheet (2 of 5)



1.1 Sherwoods Road Access Construction Plan
(Scale: 1 inch = 20 feet)

Sherwood Drive Approach Notes:

1. Anticipated traffic on approach will be 50 vehicles per day or fewer.
2. Construction must meet the standards and procedures set forth in *Section 3: Commercial & Road Approach Encroachement Permits and Standards* in the latest edition of the *Road Standards Manual* by the *Bonner County Road & Bridge Department*.
3. During construction, barricades, signs and other traffic controls shall be erected and maintained in conformance with the latest edition of the Manual on Uniform Traffic Control Devices.
4. All disturbed areas shall meet the *Restoration Requirements* of the *Bonner County Road Standards Manual (*Section 2.8). A summary of these requirements area as follows: a) Existing drainages shall be kept clean at all times. b) Any disturbance of the travel surface, shoulders, etc. shall be repaired and restored to its prior condition. c) All rubish and debris shall be immediately removed and the roadway and roadside shall be left neat and presentable. d) All areas within the County right-of-way which have been disturbed or denuded of vegetation shall be reseeded in accordance to ISPWC standards.
5. See Sheets C-100 & C-101 for more design information not shown on this sheet.

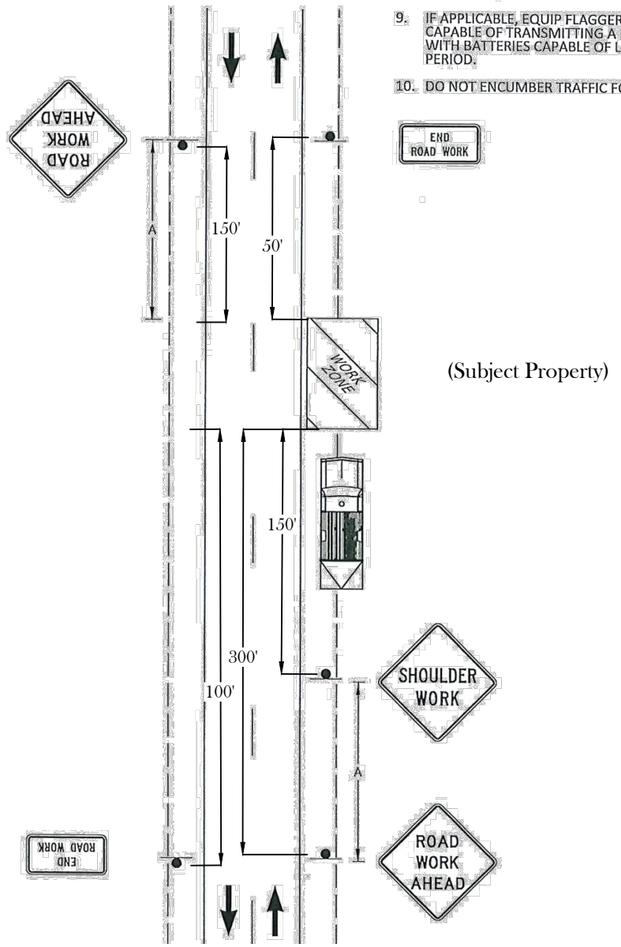
TRAFFIC CONTROL NOTES

1. MAINTAIN A MINIMUM 12' TRAVEL LANE IN EACH DIRECTION AT ALL TIMES.
2. THE DISTANCES SHOWN BETWEEN TEMPORARY TRAFFIC CONTROL DEVICES ARE APPROXIMATE MINIMUMS AS GOVERNED BY THE MUTCD, AND ADJUSTMENTS MAY BE NECESSARY IN THE FIELD DEPENDING ON CONDITIONS ENCOUNTERED.
3. INSTALL ALL TEMPORARY TRAFFIC CONTROL DEVICES PRIOR TO START OF ANY WORK.
4. INSTALL SIGNS ON BREAKAWAY SIGN POST(S) IF REMAINING IN PLACE FOR MORE THAN THREE CALENDAR DAYS, USE SQUARE WOOD OR SQUARE STEEL PERFORATED TUBE POST(S). THE CALCULATIONS FOR DETERMINING THE SIGN LOAD IS SHOWN IN SIGN LOAD CALCULATION FIGURE. THE MAXIMUM SIGN LOADS FOR EACH POST ARE SHOWN IN SIGN POST DESIGN INFORMATION TABLE.
5. REMOVE UNUSED TEMPORARY TRAFFIC CONTROL DEVICES FROM THE EDGE OF TRAVELED WAY AND PUT OUTSIDE OF THE CLEAR ZONE OR BEHIND GUARDRAIL.
6. PROVIDE TEMPORARY TRAFFIC CONTROL DEVICES IN NEW OR LIKE NEW CONDITION, MEETING THE RETROREFLECTIVITY REQUIREMENTS OF THE FEDERAL HIGHWAY ADMINISTRATION'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
7. PER IDAHO CODE, ANY REGULATORY SPEED CHANGES PROPOSED IN PLANS OR ON SITE MUST BE APPROVED BY THE DISTRICT TRAFFIC ENGINEER PRIOR TO IMPLEMENTATION. ALLOW FIVE BUSINESS DAYS FOR REQUEST PROCESSING. THIS DOES NOT APPLY TO ADVISORY SPEEDS ASSOCIATED WITH WARNING SIGNS.
8. IF APPLICABLE, OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
9. IF APPLICABLE, EQUIP FLAGGERS WITH TWO-WAY RADIOS CAPABLE OF TRANSMITTING A DISTANCE OF TWO MILES AND WITH BATTERIES CAPABLE OF LASTING THE ENTIRE WORKING PERIOD.
10. DO NOT ENCUMBER TRAFFIC FOR MORE THAN 15 MINUTES.

END ROAD WORK

2.1 Vicinity Map
(Scale: 1 inch = approximately 100 feet)

(East towards US HWY-95)



2.2 Traffic Control Plan
(Not to Scale)

N

0 1"

1 inch = varies

Prior to digging,

*Please call 911 for emergencies

Disclaimer

The Woolshire Manufactory
in Sagle, Idaho

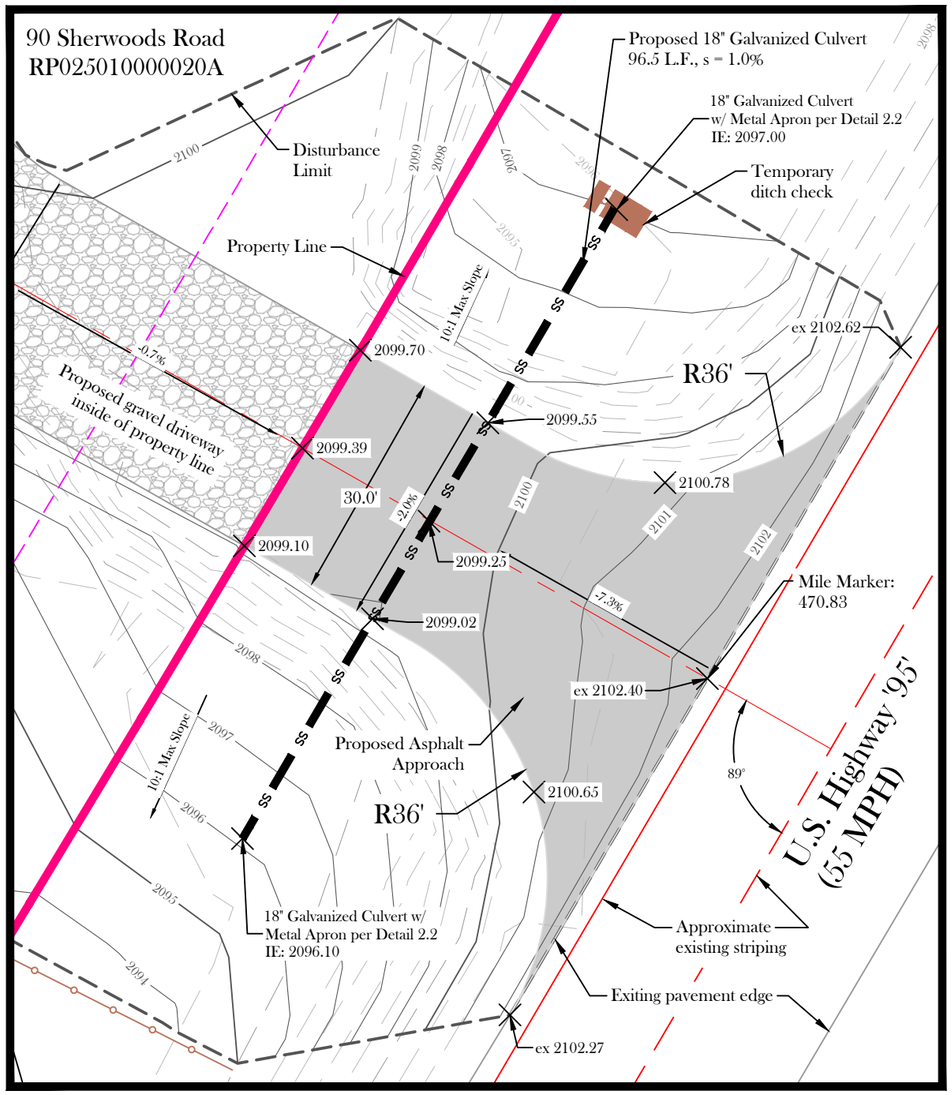
Project Title

Drawing Date
September 12th, 2024

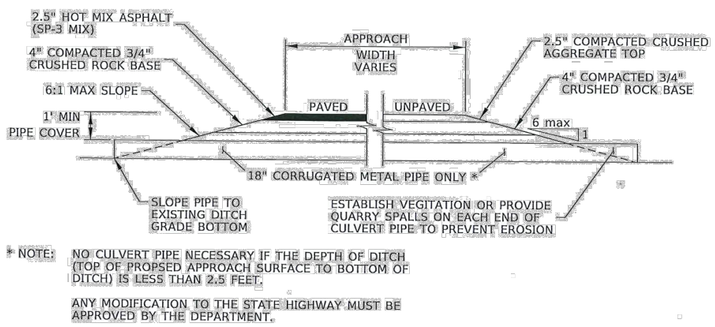
Jedediah Sachen, PE
Prepared By

Sherwoods Drive Approach Details
Sheet Title

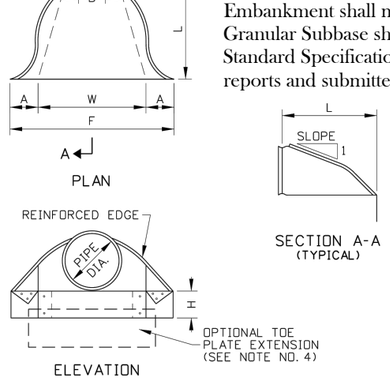
"C-102"
Sheet (3 of 5)



1.1 Proposed Approach Plan



2.1 Typical Approach Cross Section
(Not to scale)



APRON FOR ROUND METAL PIPE
(GALVANIZED STEEL)

DIMENSIONS TABLE									
PIPE DIA.	THICK-NESS (1000'S)	ALL DIMENSIONS ARE IN INCHES						APPROX. SLOPE	BODY
		A (MIN.)	B	H (MIN.)	F (MIN.)	L ±2"	W (MAX.)		
12	0.064	5	7	6	22	21	24	2½:1	1 PC.
15	0.064	7	8	6	28	26	30	2½:1	1 PC.
18	0.064	7	10	6	34	31	36	2½:1	1 PC.

2.2 Apron for Round Metal Pipe
(Not to scale)

Proposed Approach Information:

1. Anticipated traffic on approach will be 50 vehicles per day or fewer.
2. Estimated quantity of asphalt pavement is ~38 tons.

US-95 Approach Notes (ITD Jurisdiction, refer to IDAPA 39.03.42):

1. A paper or digital copy of the permit, including the traffic control plan and all attachments must be a the work site while work is in progress.
2. Notify ITD five (5) working days before starting permitted work.
3. Work must not disturb or interfere with existing State Highway drainage system.
4. ITD may inspect work during and after construction.
5. All work must be completed in less than 30 days.
6. Requirements apply to work under ITD encroachment permit that includes any operation in which earth, rock, or other material in the ground is moved or otherwise displaced by any means including, but not limited to: location and installation of utilities, site preparation, approach / roadway construction, grading, trenching, boring, landscaping, and restoration.
7. All work within ITD R.O.W. shall be in accordance with Idaho 2018 *Standard Specifications for Highway Construction*, latest editions.
8. As-built requirements: a) Document precise location any utility placed or encountered within work area. Reference utility location from the highway centerline or edge of right-of-way, dimension horizontal, vertical and/or depth. Include utility type, size, and quantity. b) Submittals should be as "plan and profile" format, other methods may be accepted with prior authorization. c) Compaction effort and method: list type of equipment used, number of passes, estimated percentage of compaction.
9. Materials shall be documented and submitted for approval a minimum of 14 business days prior to the planned placement on form ITD 0862. All materials shall be sourced from an ITD Qualified Vendor. Weight tickets shall be provided with each load of material identifying the material type and to certify the material properties.
10. Testing and Inspection should conform with ITD Section 270.00, *Minimum Testing Requirements.*
11. During construction, barricades, signs and other traffic controls shall be erected and maintained in conformance with the latest edition of the Manual on Uniform Traffic Control Devices.
12. See Sheets C-100 & C-101 for more design information not shown on this sheet.
13. Mix designs shall be submitted for approval a minimum of 14 business days prior to the planned placement.
14. Testing and compaction reports shall be performed by a 3rd party qualified commercial material inspection laboratory, using WAQTC qualified personnel. Certification must be submitted prior to ITD Final Acceptance.
15. Earthwork and base material shall have a minimum depth of six inches (6") and be of 3/4-inch untreated aggregate type "A" or "B". Granular sub base shall have a minimum depth of seventeen and one-half inches (17.5") and type-III geotextile fabric shall be place between the subgrade and the subbase in accordance to section 718.07.
16. The permit holder shall return to original condition and re-seed all areas disturbed. Only flowers, grasses and shrubs with a mature height of three (3) feet to seven (7) feet will be allowed within the sight triangle at corners and the safety clear zone of the State Highway. Landscaping shall be short enough or trimmed so it doesn't interfere with State Highway signs. No rocks over four (4) inches maximum size. Sprinkler heads shall be no closer than five (5) feet from the pavement edge and adjusted to not cause water to cover any part of the highway surface.
17. When required from the guidelines listed in ITD *Approach Permits* provision, testing and compaction reports shall be performed by a 3rd party qualified commercial material inspection laboratory, using WAQTC qualified personnel. Certification must be submitted prior to ITD Final Acceptance. In-place density and moisture content of soil and soil aggregate by nuclear methods shall be required for traveled way paving documented on form ITD 0850. Excavation and Embankment shall meet the testing requirements of section 205 – Classes of Compaction and Density Requirements. Granular Subbase shall meet the requirements of section 301 – Granular Subbase. Cores are required in accordance with Standard Specification 405.03L for in-place density acceptance for paving. All testing shall be documented with field or test reports and submitted to the permit coordinator. ITD retains the right to perform confirmation testing.

Surface Course and Pavement Notes:

1. Surface courses and pavement shall have a minimum depth of 0.45-ft and be Superpave Hot Mix Asphalt SP3 1/2-inch nominal maximum aggregate, using PG 64-34 Binder or better incuding a 0.5% anti-strip additive in accordance to subsection 405.
2. Pavement density cores shall be required for all traveled way paving. Core samples shall be tested in accordance to 405.03L (includes traffic lanes and shoulders) excludes: approaches where traffic lanes are not included and pavement placed outside the traveled way.
3. Surface smoothness will be checked with a 10' straight edge to verify it conforms to Section 405 – Superpave Hot Mix Asphalt. The contractor shall be required to repair any areas to meet the required surface smoothness
4. Existing plant mix shall be saw-cut to neat lines; no wheel or jackhammer cutting shall be permitted. The sawed joints shall be perpendicular and longitudinal to centerline of the roadway.
5. Longitudinal joints shall be located close to a lane line, after final striping, and shall not be located in the wheel path areas of the lane(s).
6. Prior to the placement of Hot Mix Asphalt, any temporary base or plant mix shall be removed, replaced with new material, and compacted to achieve the specified depths.
7. Superpave Hot Mix Asphalt shall be placed in accordance with Section 405.
8. Joining new asphalt to existing pavement (pave-back) should be keyed to avoid a vertical split or separation in pavement.
9. Superpave Hot Mix Asphalt patching shall be completed within 24 hours after completing base course compaction. Traffic shall not be allowed on the permanent backfill or base prior to paving.

N

0 1"

1 inch = varies

Prior to digging,

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Disclaimer

The Woolshire Manufactory
in Sagle, Idaho

Project Title

Drawing Date

September 12th, 2024

Jedediah Sachen, PE

Prepared By

U.S. Highway 95
Approach Details

Sheet Title

"C-103"

Sheet (4 of 5)

Stormwater Calculations for the Woolshire Manufactory

Prepared by Jedediah Sachen, PE 9/4/2024

Pre-developed Conditions

Soil Type 'D', Ksat = 0.00 in/hr I (25y/24hr) = 0.11 in/hr

Cover	Area (sf)	Area (AC)	C	Q (cfs)
Roof	0	0.00	0.99	0.00
Gravel	0	0.00	0.84	0.00
Pasture (poor)	48,950	1.12	0.84	0.10
Woodland (Thin)	0	0.00	0.70	0.00
	48,950	1.12	0.84	0.10

25 Year Storm

Time (min)	I (in/hr)	Q (cfs)	Vol. (cf)
5	2.8	2.64	793
10	2.1	1.98	1388
15	1.8	1.70	1897
30	1.5	1.42	3172
45	0.9	0.85	3936
60	0.78	0.74	4599
75	0.69	0.65	5185
90	0.63	0.59	5720
105	0.58	0.55	6213
120	0.51	0.48	6646
150	0.44	0.42	7394
180	0.38	0.36	8040
240	0.35	0.33	9229
300	0.29	0.27	10214
360	0.26	0.25	11098
480	0.23	0.22	12661
720	0.17	0.16	14972
1080	0.13	0.12	17622
1440	0.11	0.10	19865

Post-Developed Conditions

Note: Total Area considered of 48,950 sf is the disturbed area

Cover	Area (sf)	Area (AC)	C	Q (cfs)
Roof	3,200	0.07	0.99	0.01
Gravel	25,330	0.58	0.84	0.05
Pasture (poor)	20,420	0.47	0.84	0.04
Woodland (Thin)	0	0.00	0.70	0.00
	48,950	1.12	0.85	0.11

25 Year Storm

Time (min)	I (in/hr)	Q (cfs)	Vol. (cf)	Q out (cfs, post-pre)	**V out (cf, post-pre)**
5	2.8	2.67	802	0.03	9
10	2.1	2.01	1404	0.02	7
15	1.8	1.72	1919	0.02	6
30	1.5	1.43	3209	0.02	15
45	0.9	0.86	3982	0.01	9
60	0.78	0.74	4653	0.01	8
75	0.69	0.66	5246	0.01	7
90	0.63	0.60	5787	0.01	6
105	0.58	0.55	6286	0.01	6
120	0.51	0.49	6724	0.01	5
150	0.44	0.42	7480	0.00	9
180	0.38	0.36	8133	0.00	8
240	0.35	0.33	9337	0.00	14
300	0.29	0.28	10334	0.00	12
360	0.26	0.25	11227	0.00	10
480	0.23	0.22	12809	0.00	18
720	0.17	0.16	15147	0.00	27
1080	0.13	0.12	17828	0.00	31
1440	0.11	0.11	20097	0.00	26
Required storage for peak rate of runoff (cf)					31

Note: *this may seem atypically low, however it is due to the prexisting Soil (Type D)*

Impervious Area: 28,530 sf First 1/2" vol: 1189 cf (minimum design criteria)

Swale	Bottom Area (sf)	Top Area (sf)	Depth (ft)	Vol. (cf)	
1	2602	2952	0.5	1388.5	Volume provided

1.1 Stormwater Calculations

I, Jedediah Sachen, PE, am currently employed full-time by Bonner County, Idaho as a professional Civil Engineer. This work was completed outside of my employment with my Employer's permission without detriment to my employed duties. In no way have I, or will I, use my current position in an unfair and advantageous way to influence the acceptance of these drawings for their intended permit applications. I will not review my own work for acceptance for Bonner County permits, nor will I use my position to obtain inside information or influence the review process; instead, I remain neutral as any other outside applicant.

I have reviewed IDAPA 24.32.01 (*Rules of Board Licensure of Professional Engineers and Professional Land Surveyors* by the Idaho Board of Licensure for Professional Engineers and Professional Land Surveyors, latest edition as of 9/12/2024) to the best of my abilities and see no cause of infraction of my professional license in this work.

Please contact me with any questions or comments at:

608-770-6466 or jedsachen@gmail.com

Thank you.

1.2 Professional Disclosure Statement

Prior to digging,

*Please call 911 for emergencies

Disclaimer

The Woolshire Manufactory in Sagle, Idaho

Project Title

Drawing Date

September 12th, 2024

Jedediah Sachen, PE

Prepared By

Stormwater Calculations & Disclosure Statement

Sheet Title

"C-104"

Sheet (5 of 5)