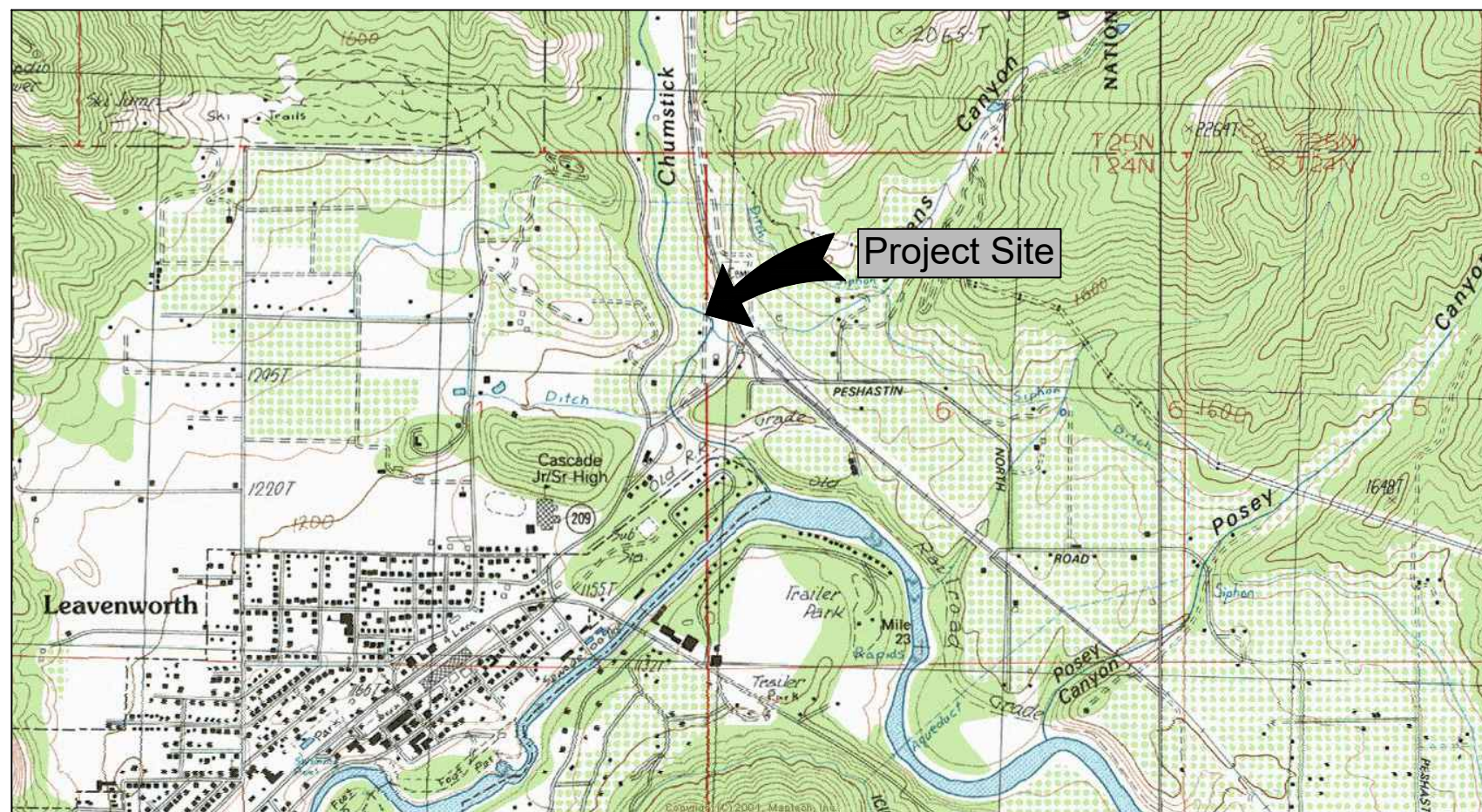


Construction Documents

Chumstick Creek Culvert - RM 0.52

Motteler Drive

Project Number 19-1584



Landowner: Chelan County
 Sec Twship Range: E 1/2 Section 1, T24N, R18E
 Lat and Long: 47.60799, -120.647189

Address: Motteler Orchards LLC
 10430 Motteler Rd
 Leavenworth, WA 98826

VICINITY MAP
 NOT TO SCALE



DRAWING INDEX:

1. Cover Sheet
2. Legend and Notes
3. Existing Site Plan
4. Site Plan Proposed
5. Stream Profiles
6. Road Profiles
7. Road Sections
8. Details
9. Details
- 9a. Wing Wall Channel Layout



Know what's below.
 Call before you dig.



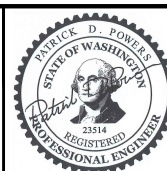
Road View South of Creek



Road View North of Creek



Chumstick Creek Culvert
 RM 0.48 - Motteler Drive



2/21/22

REV	DATE	BY	APPD	DESCRIPTION

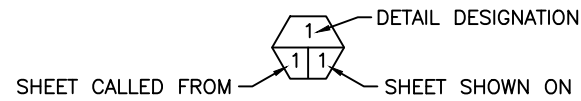
SCALE VERIFICATION
 BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"
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DESIGN BY:
 Waterfall Engineering
 DRAWN BY:
 DATE:
 3/12/22

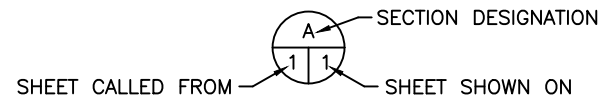
Cover Sheet

1 SHEET OF 9

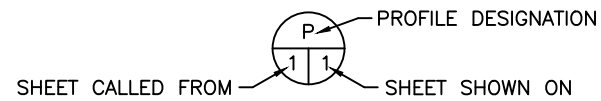
SHEET SYMBOLS



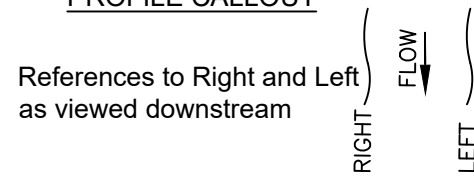
DETAIL CALLOUT



SECTION CALLOUT



PROFILE CALLOUT



ABBREVIATIONS

"	- INCHES	MISC.	- MISCELLANEOUS
'	- FEET	MPH	- MILES PER HOUR
APPROX.	- APPROXIMATELY	O.C.	- ON CENTER
B&B	- BALLED AND BURLAPPED	O.D.	- OUTSIDE DIAMETER
BM	- BENCH MARK	OHW	- ORDINARY HIGH WATER
⊕	- CENTERLINE	PK	- PARKER-KALON
CAL.	- CALIPER	R.O.W.	- RIGHT OF WAY
CFS	- CUBIC FEET PER SECOND	REQ'D	- REQUIRED
CLR.	- CLEARANCE	SEC.	- SECTION
CMP	- CORRUGATED METAL PIPE	S.F.	- SQUARE FEET
CONC.	- CONCRETE	SHT.	- SHEET
DIA.	- DIAMETER	SPEC'S.	- PROJECT SPECIFICATIONS
ELEV.	- ELEVATION	STA.	- STATION
EQ.	- EQUAL	SS	- STAINLESS STEEL
FTG.	- FOOTING	TEMP.	- TEMPORARY
HDPE	- HIGH DENSITY POLYETHYLENE	TYP.	- TYPICAL
HT.	- HEIGHT	W.S.	- WATER SURFACE
GAL.	- GALLON	WSDOT	- WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
I.D.	- INSIDE DIAMETER	WSEL	- WATER SURFACE ELEVATION
I.E.	- INVERT ELEVATION		
LBS.	- POUNDS		
LWD	- LARGE WOODY DEBRIS		
MAX.	- MAXIMUM		
MFG.	- MANUFACTURER'S		
MHW	- MEAN HIGH WATER		
MHHW	- MEAN HIGHER HIGH WATER		
MIN.	- MINIMUM		
MISC.	- MISCELLANEOUS		

LEGEND

	PROPERTY LINE		FOUND SURVEY MONUMENT
	RIGHT OF WAY LINE		SET CONTROL POINT
	CENTERLINE		POWER POLE
	EXISTING FENCE		MANHOLE
	BUILDING LINE		UTILITY CABINET
	INDEX CONTOUR LINE		LIGHT POST
	UNDERGROUND POWER		TREE
	EXISTING WATER LINE		WATER VALVE
	<i>EXISTING CALLOUT</i>		OWNERSHIP REFERENCE
	NEW CALLOUT		CONCRETE
	SURVEY POINT		FILL
	EXISTING TREES TO REMAIN		ROCK/GRAVEL
	PROJECT BENCH MARK		UNDISTURBED GRADE
	BORING LOCATIONS		WETLAND DELINEATION
	SANDBAGS		DEMO
	NOTE CALLOUT		ELEVATION MARKER
	STATION CALLOUT		TREE TO BE REMOVED
	PHOTO CALLOUT		TREE TO REMAIN

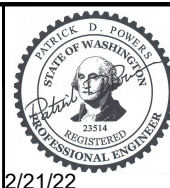
Survey Completed by M2C December 2019. State Plane Coordinates.

Control Points				
POINT	EASTING	NORTHING	ELEV	Description
24	1686349.14	221721.72	1139.53	MNCC SET
100	1686334.71	221834.17	1143.02	WFRC
25	1686358.34	221944.69	1145.62	MNCC SET

Culvert Coordinates – Invert/Top				
Number	EASTING	NORTHING	ELEV	Description
①	1686331.99	221862.35	1030.7	Culvert Invert
②	1686347.97	221861.46	1030.7	Culvert Invert
③	1686346.63	221837.51	1030.7	Culvert Invert
④	1686330.63	221838.40	1030.7	Culvert Invert



Chumstick Creek Culvert RM 0.48 - Motteler Drive



2/21/22

REV	DATE	BY	APPD	DESCRIPTION

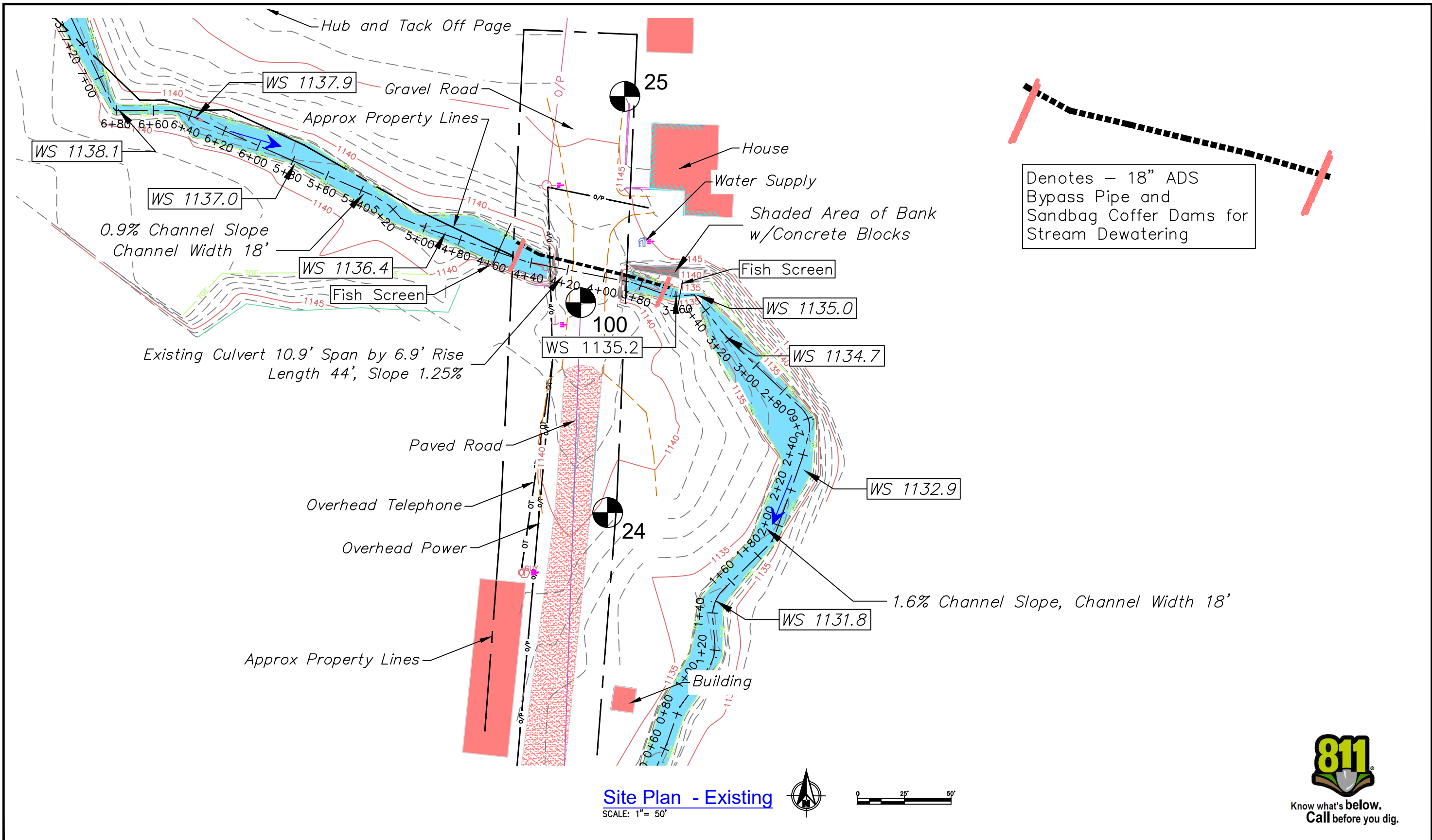
SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DESIGN BY:
Waterfall Engineering

DRAWN BY:

DATE:
3/12/22

Legend and Notes



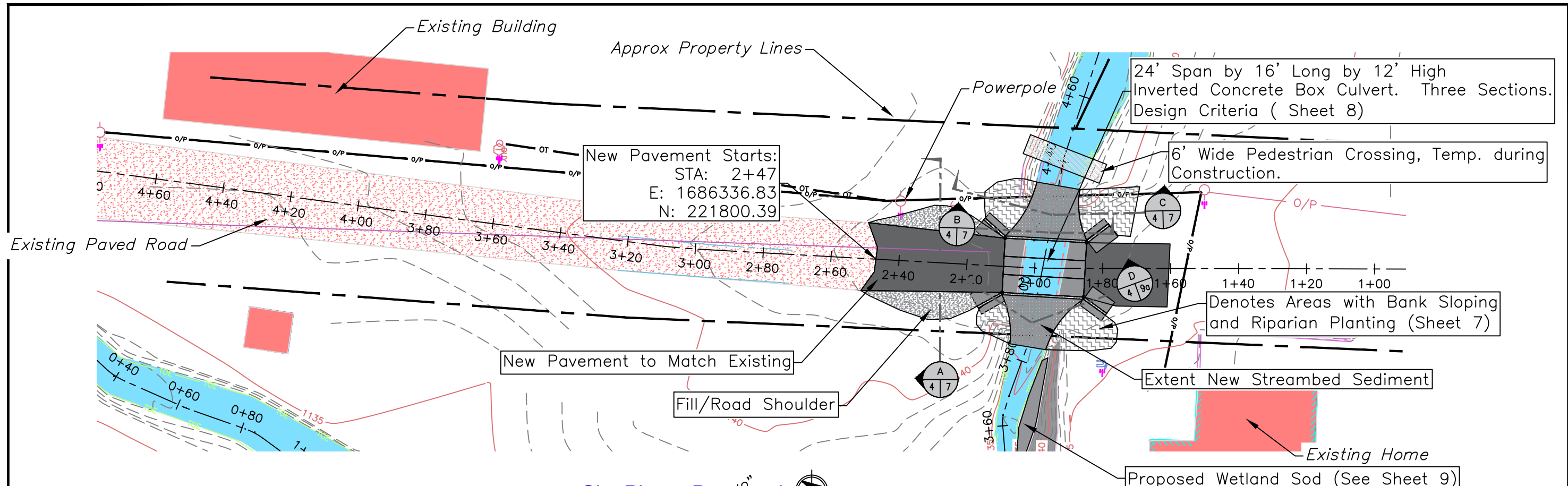
Denotes - 18" ADS Bypass Pipe and Sandbag Cofferdams for Stream Dewatering

Site Plan - Existing
SCALE: 1" = 50'



Know what's below.
Call before you dig.

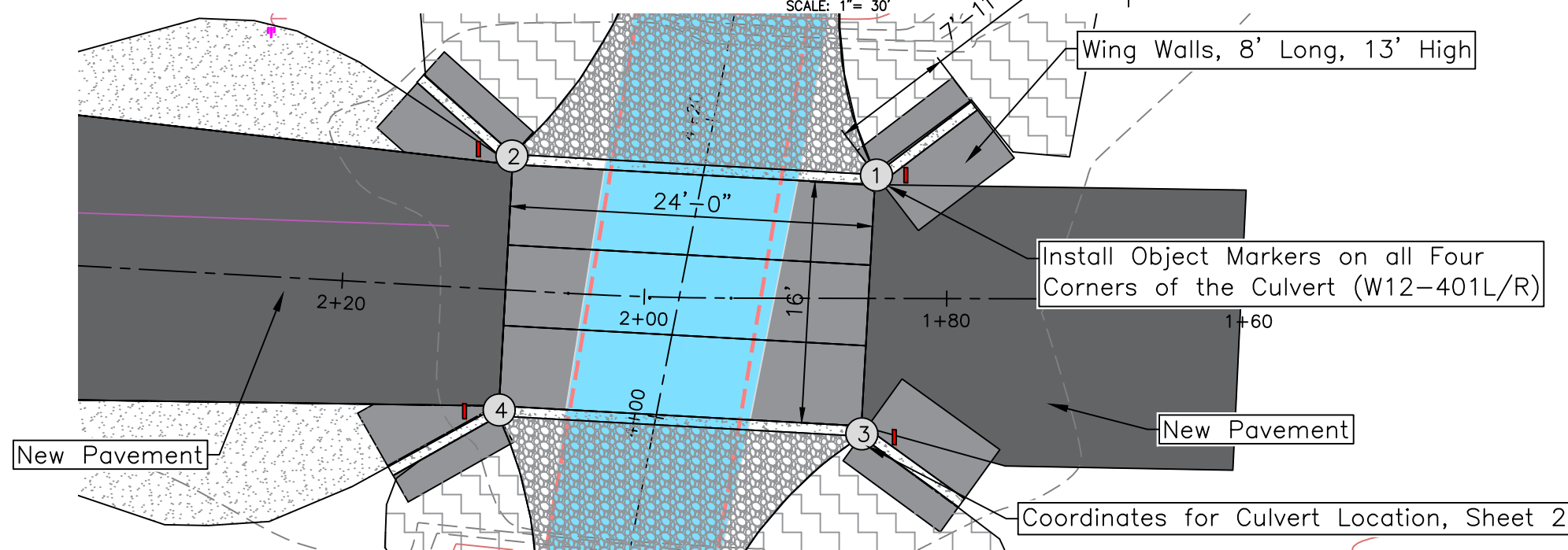
	<h2 style="margin: 0;">Chumstick Creek Culvert</h2> <h3 style="margin: 0;">RM 0.48 - Motteler Drive</h3>		REV	DATE	BY	APPD	DESCRIPTION	DESIGN BY: Waterfall Engineering
			<p style="text-align: center; margin: 0;">SCALE VERIFICATION</p> <p style="font-size: 8px; margin: 0;">BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.</p>					
								DATE: 3/12/22
								<h2 style="margin: 0;">Site Plan - Existing</h2>
								<p style="margin: 0;">3 SHEET</p> <p style="margin: 0;">9 OF</p>



Site Plan - Proposed



SCALE: 1" = 30'



Site Plan - Proposed

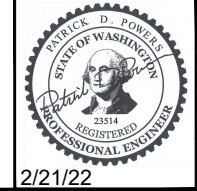
Scale 1" = 10'



Know what's below.
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Chumstick Creek Culvert RM 0.48 - Motteler Drive



REV	DATE	BY	APP'D	DESCRIPTION

SCALE VERIFICATION

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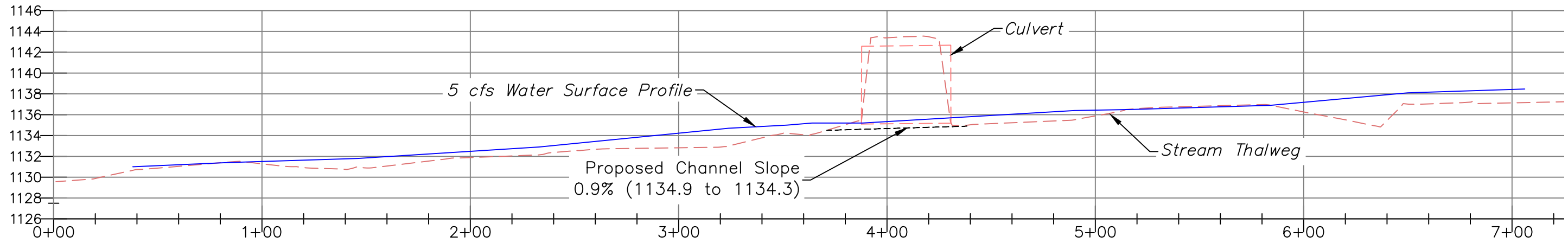
DESIGN BY:
Waterfall Engineering

DRAWN BY:

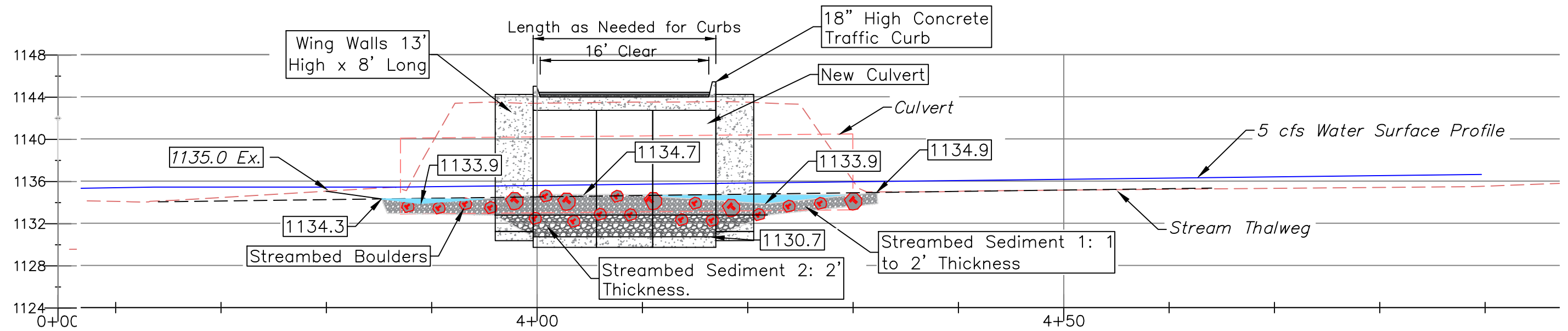
DATE:
3/12/22

Site Plan - Proposed

4 SHEET OF 9



Existing Stream Profile
Scale: Vertical 1" = 10', Horizontal 1" = 50'



Existing Stream Profile
Scale: 1" = 10'

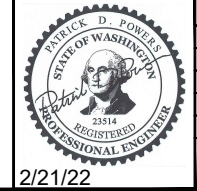
Streambed Sediment 1	
% Greater Than	Size (in)
100	10"
75	4"
50	1-1/2"
25	1/2"
15	Select Fines from Channel Excavation

Streambed Sediment 2	
% Greater Than	Size (in)
100	24"
75	14"
50	6"
25	2"
15	Select Fines from Channel Excavation

Streambed Boulders
Two Man 18 to 28"



Chumstick Creek Culvert RM 0.48 - Motteler Drive



REV	DATE	BY	APPD	DESCRIPTION

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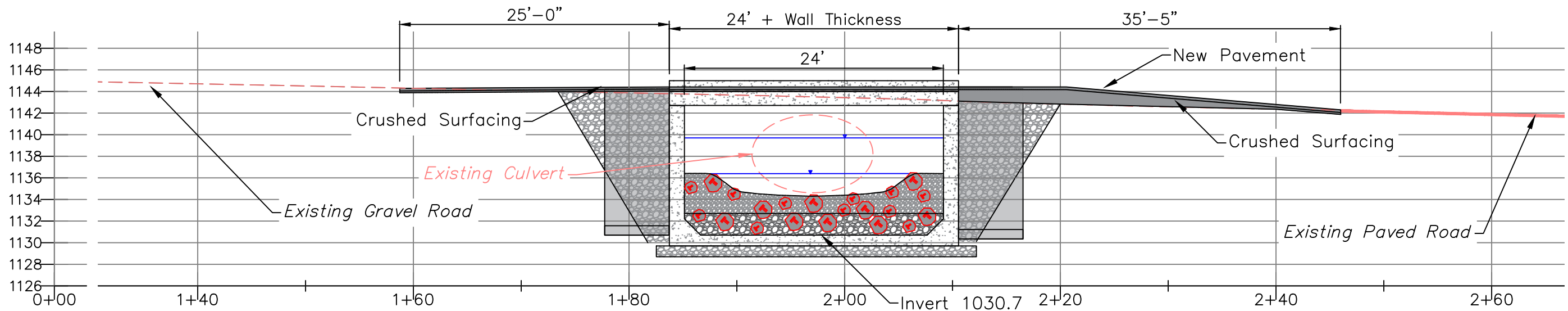
DESIGN BY:
Waterfall Engineering

DRAWN BY:

DATE:
3/12/22

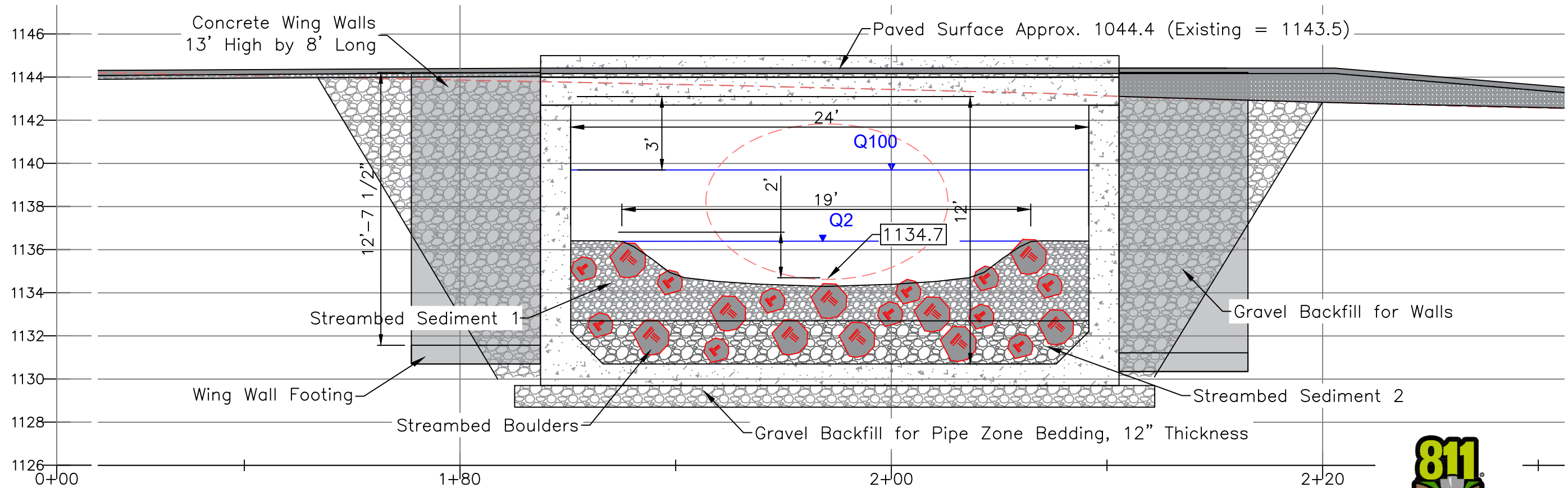
Stream Profile

5 **9**
SHEET OF



Road Profile

Scale: 1" = 10'



Road Profile

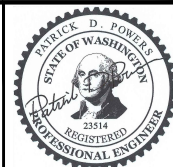
Scale: 1" = 5'



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Chumstick Creek Culvert RM 0.48 - Motteler Drive



11/22/21

REV	DATE	BY	APPD	DESCRIPTION

SCALE VERIFICATION
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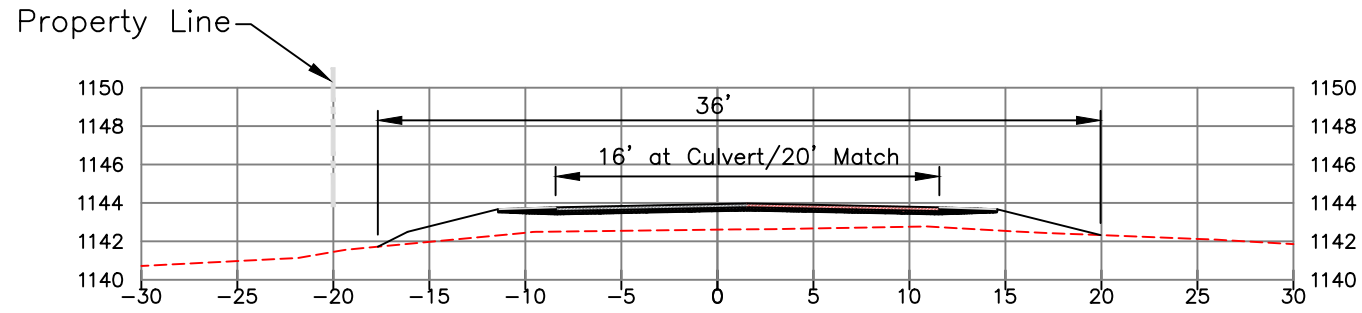
DESIGN BY:
Waterfall Engineering

DRAWN BY:

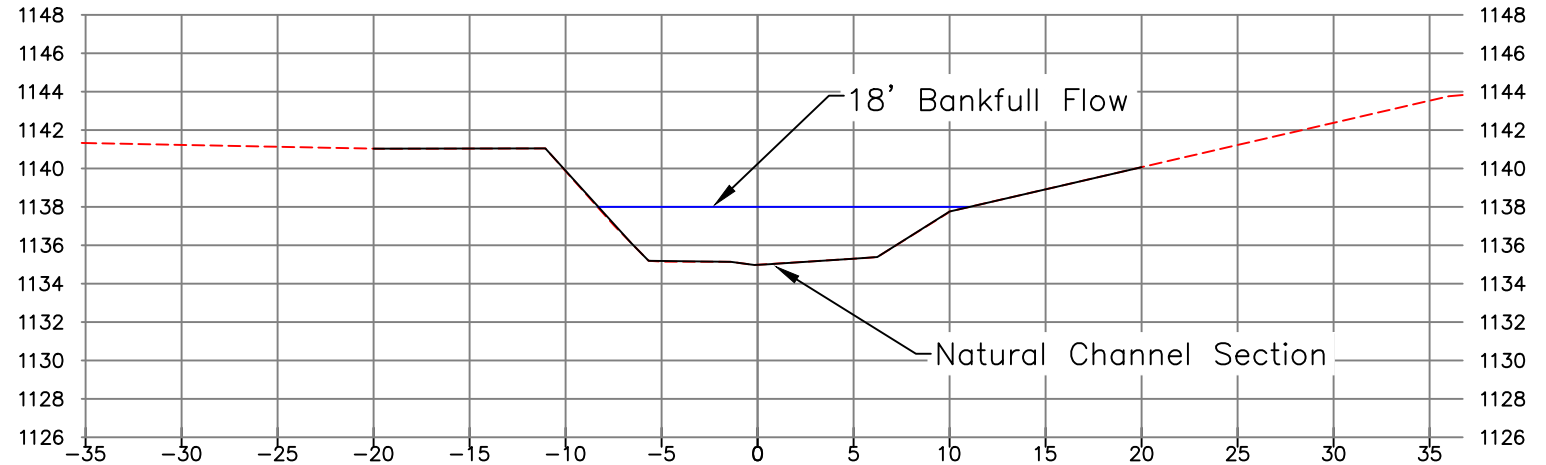
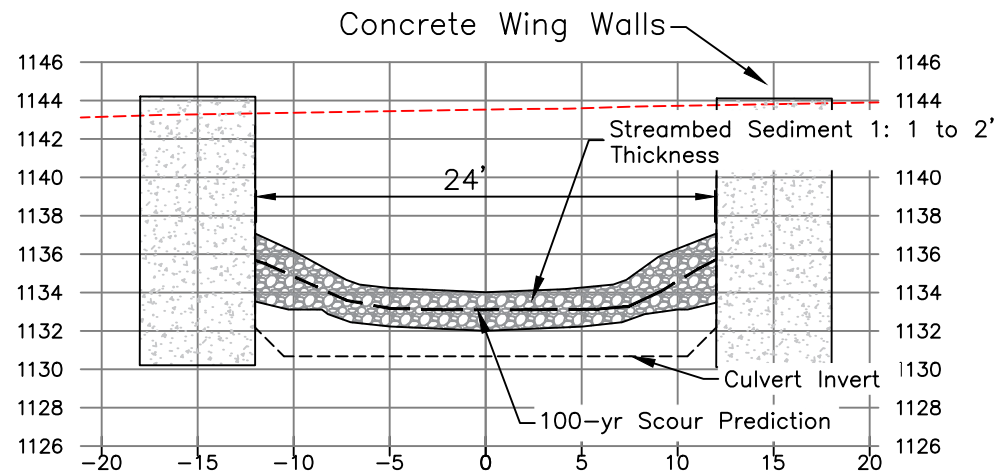
DATE:
3/12/22

Road Profiles

6 9
SHEET OF

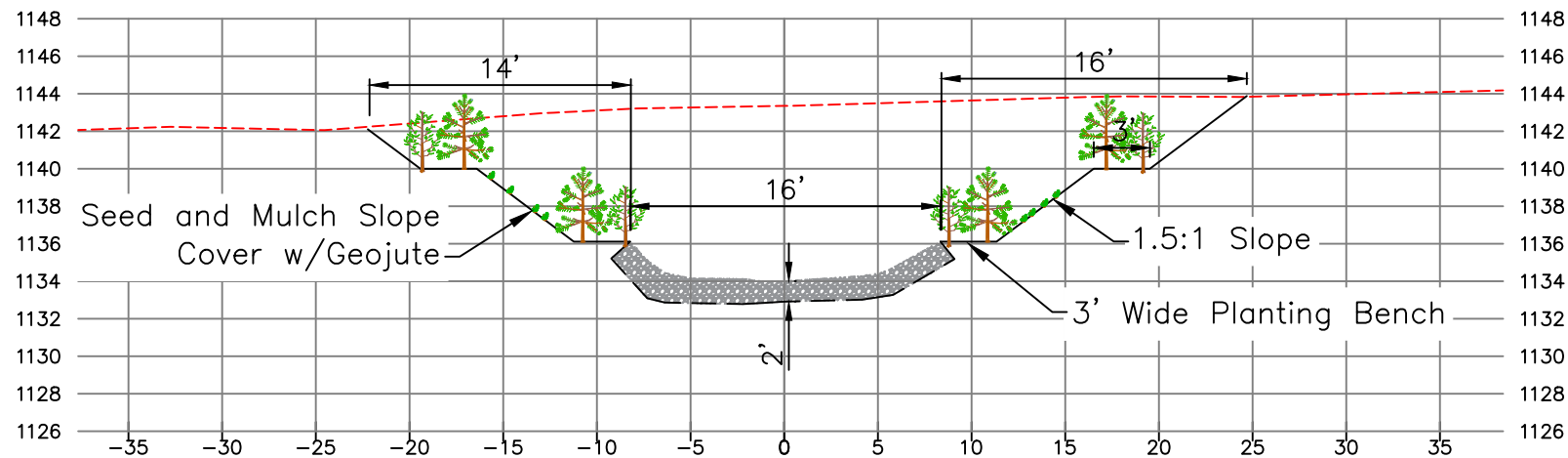


A Road Section STA 2+28 - View South
Scale: 1" = 10'



B Stream Section STA 4+37 - View Upstream
Scale: 1" = 10'

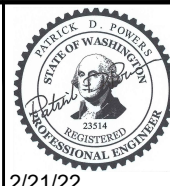
B Stream Section STA 4+18 - View Upstream
Scale: 1" = 10'



C Stream Section STA 4+23 - View Upstream
Scale: 1" = 10'



Chumstick Creek Culvert RM 0.48 - Motteler Drive



REV	DATE	BY	APPD	DESCRIPTION

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Sections

7 9
SHEET OF

Culvert Design Criteria

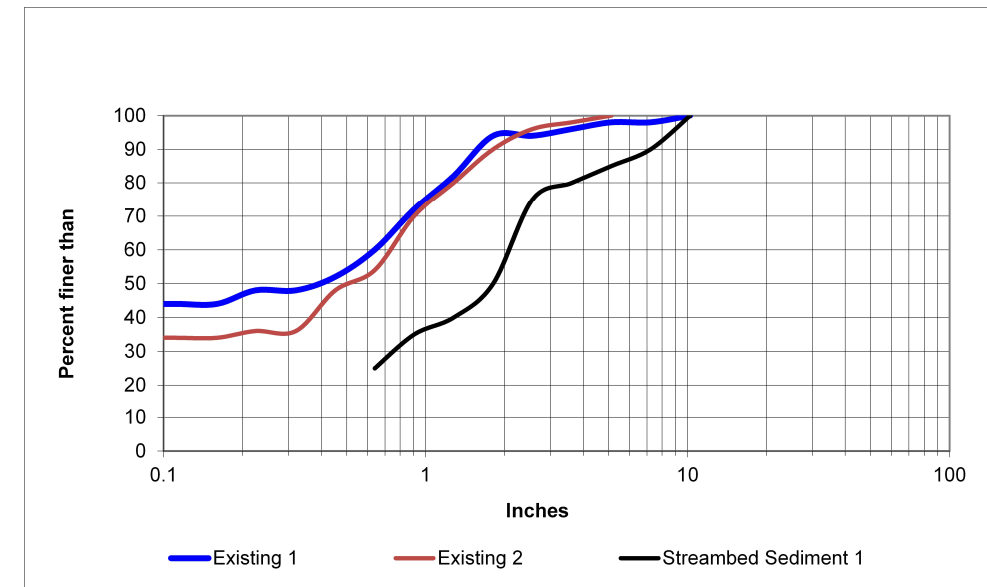
1. Size: 24' Span 12' Rise, 16' Long
2. Wing Walls per Project Plans
3. Loads: AASHTO HL-93 Bridge Design Specifications
4. Fill: 0.0'
5. Water Table: Assumed at Underside of Top Slab. Soil Bearing 2000 psf.
6. A load rating that complies with WSDOT's Bridge Design Manual Chapter 13 must be completed. This includes analysis of Specialized Haul Vehicles and Emergency Vehicles. The structure will be required to have the capacity to handle all these legal loads.
7. Culvert shall be Designed and Constructed per WSDOT Standard Specifications Section 6-20 and any Applicable General Special Provisions.

Specifications:

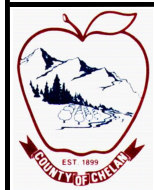
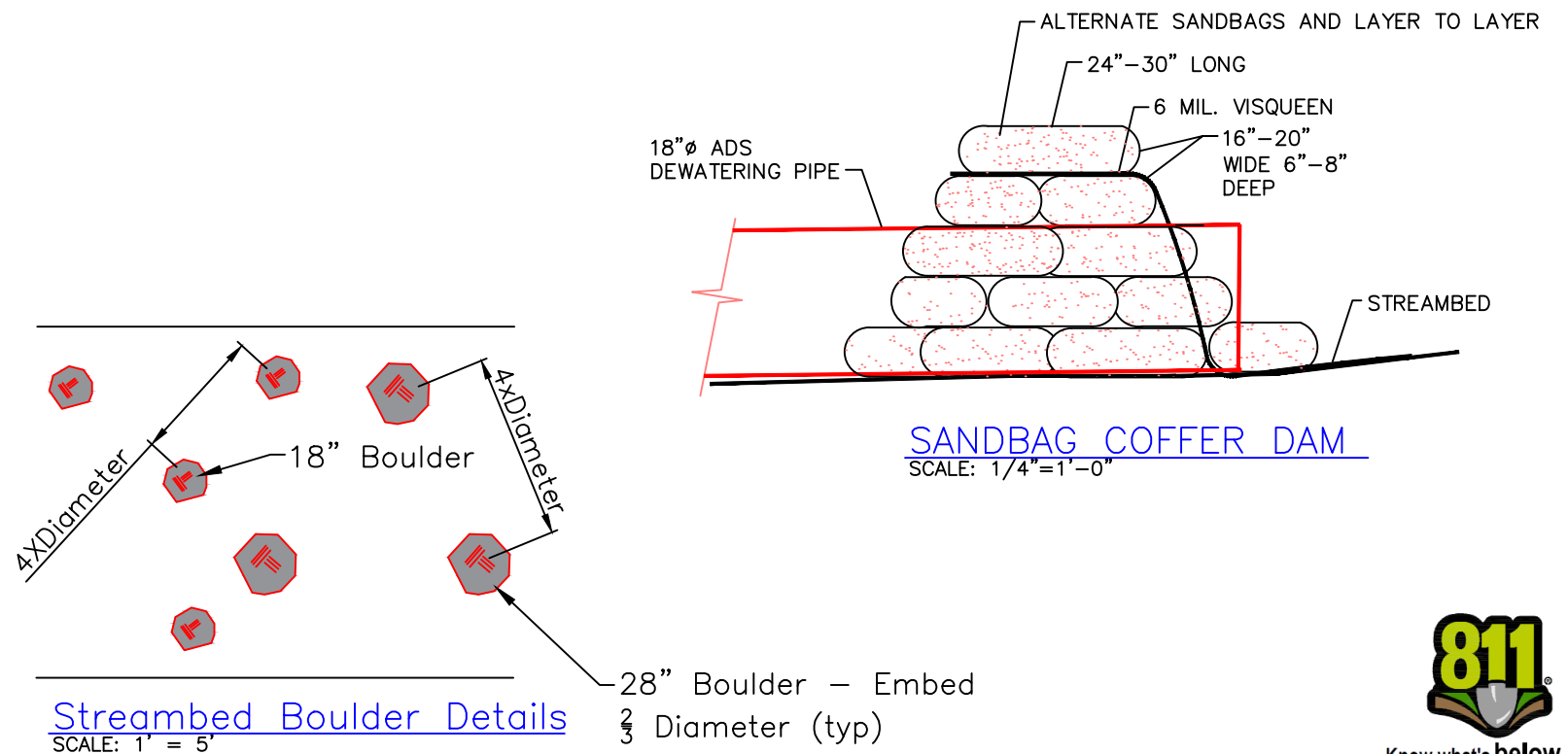
1. Concrete: F'c=5000 psi @ 28 days for Short Span Top Section.
2. Rebar: ASTM A-615 or A-706 Grade 60
3. Backfill with granular free draining material according to Project Specifications.

General Notes:

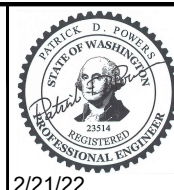
1. Finish - Class 2 - WSDOT
2. Installation and Grouting by Contractor
3. See Lifting and Handling Requirements from Culvert Vendor.



Existing Pebble Counts and Proposed Streambed Gradations – Visual Only



**Chumstick Creek Culvert
RM 0.48 - Motteler Drive**



REV	DATE	BY	APPD	DESCRIPTION

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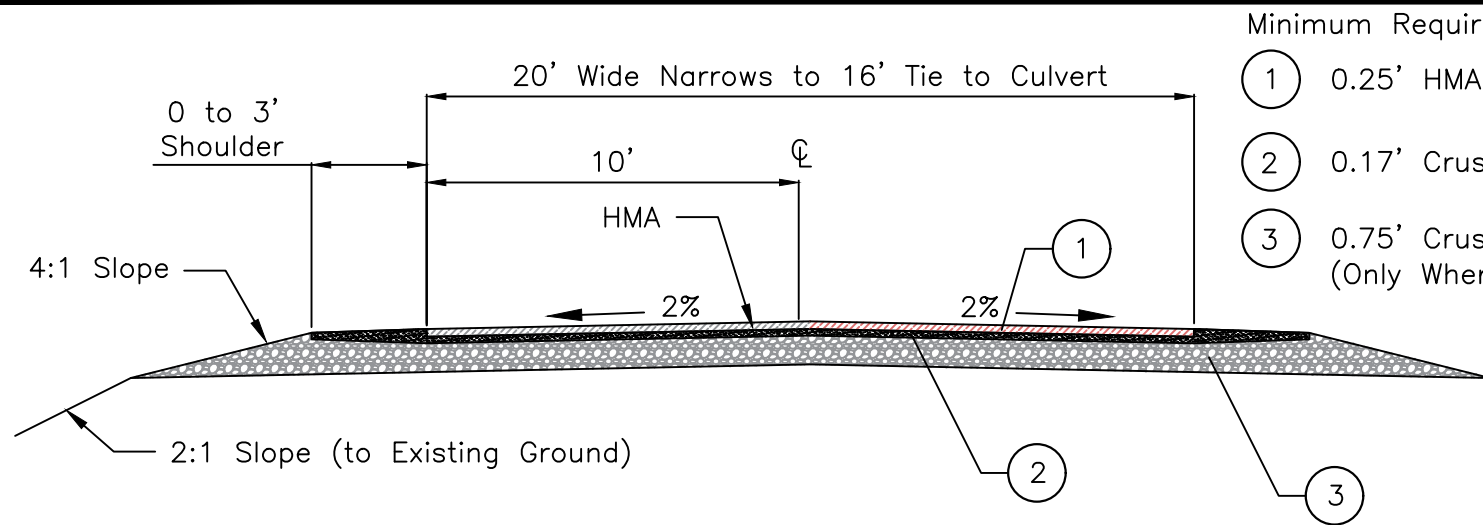
DESIGN BY:
Waterfall Engineering

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DATE:
3/12/22

Details

8 SHEET OF **9**

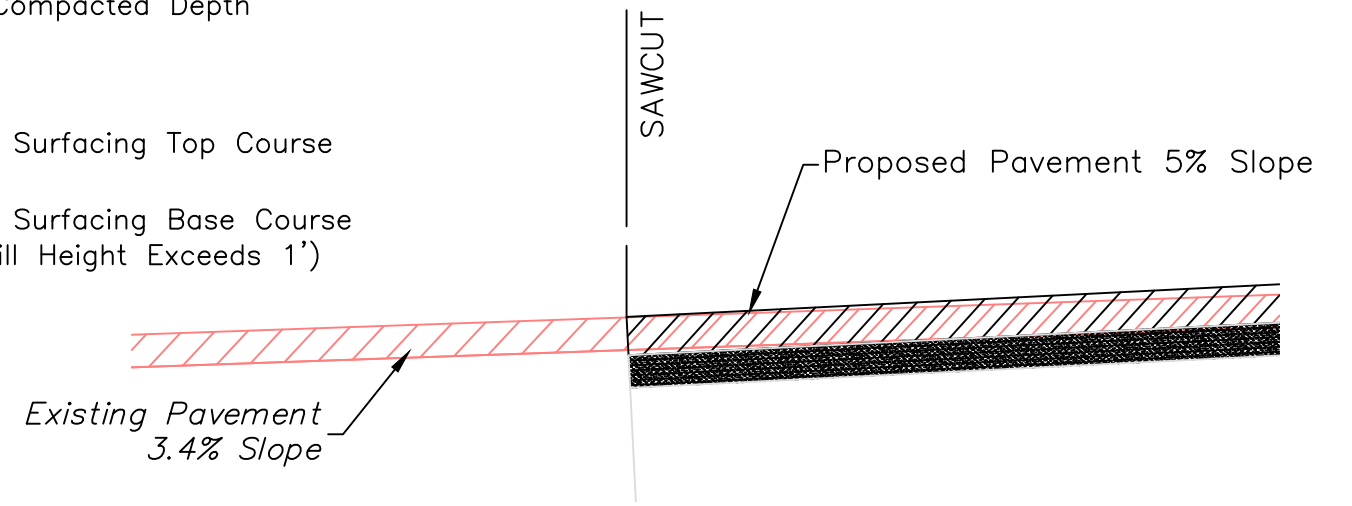


Typical Road Section

Scale 1" = 10'

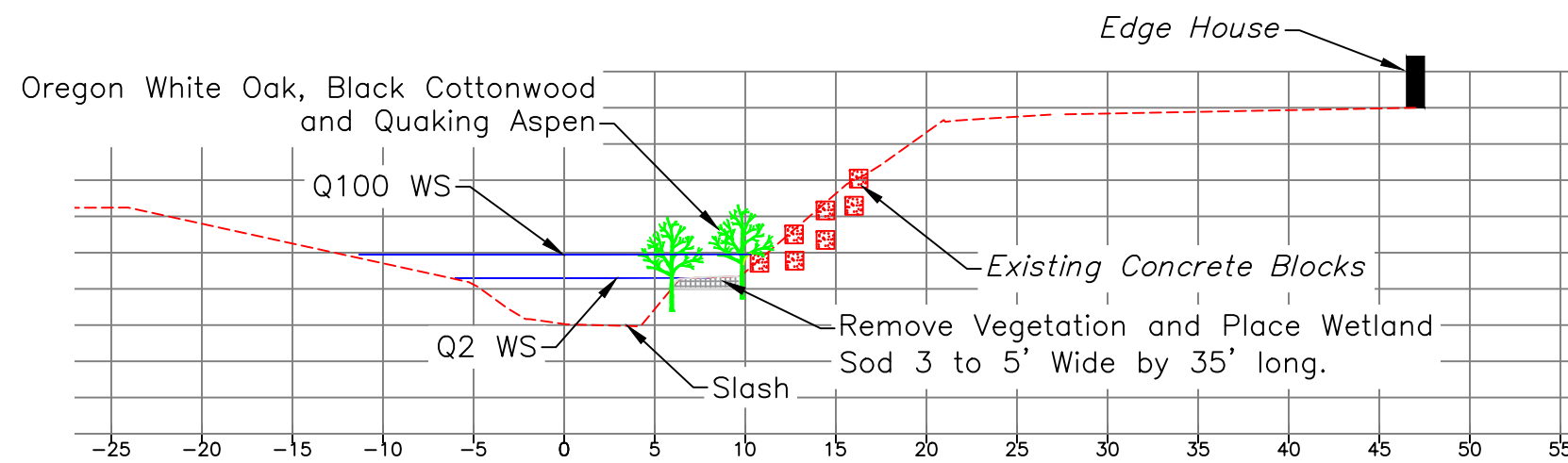
Minimum Required Compacted Depth

- ① 0.25' HMA
- ② 0.17' Crushed Surfacing Top Course
- ③ 0.75' Crushed Surfacing Base Course (Only Where Fill Height Exceeds 1')



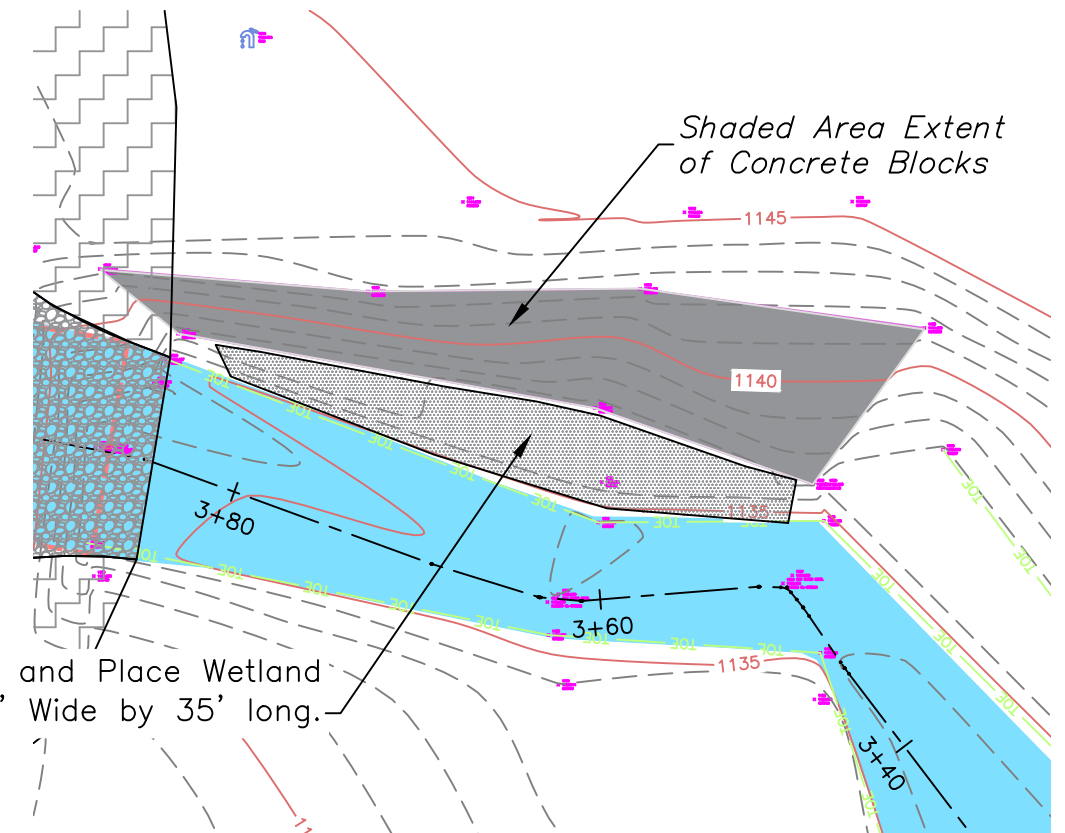
Pavement Transition Details

Scale: 1" = 1'



Stream Section STA 3+61 (View Upstream)

Scale: 1" = 10'



Wetland Sod Restoration

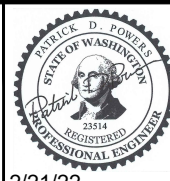
Scale: 1" = 10'



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Chumstick Creek Culvert RM 0.48 - Motteler Drive



2/21/22

REV	DATE	BY	APPD	DESCRIPTION

SCALE VERIFICATION
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 0 1'

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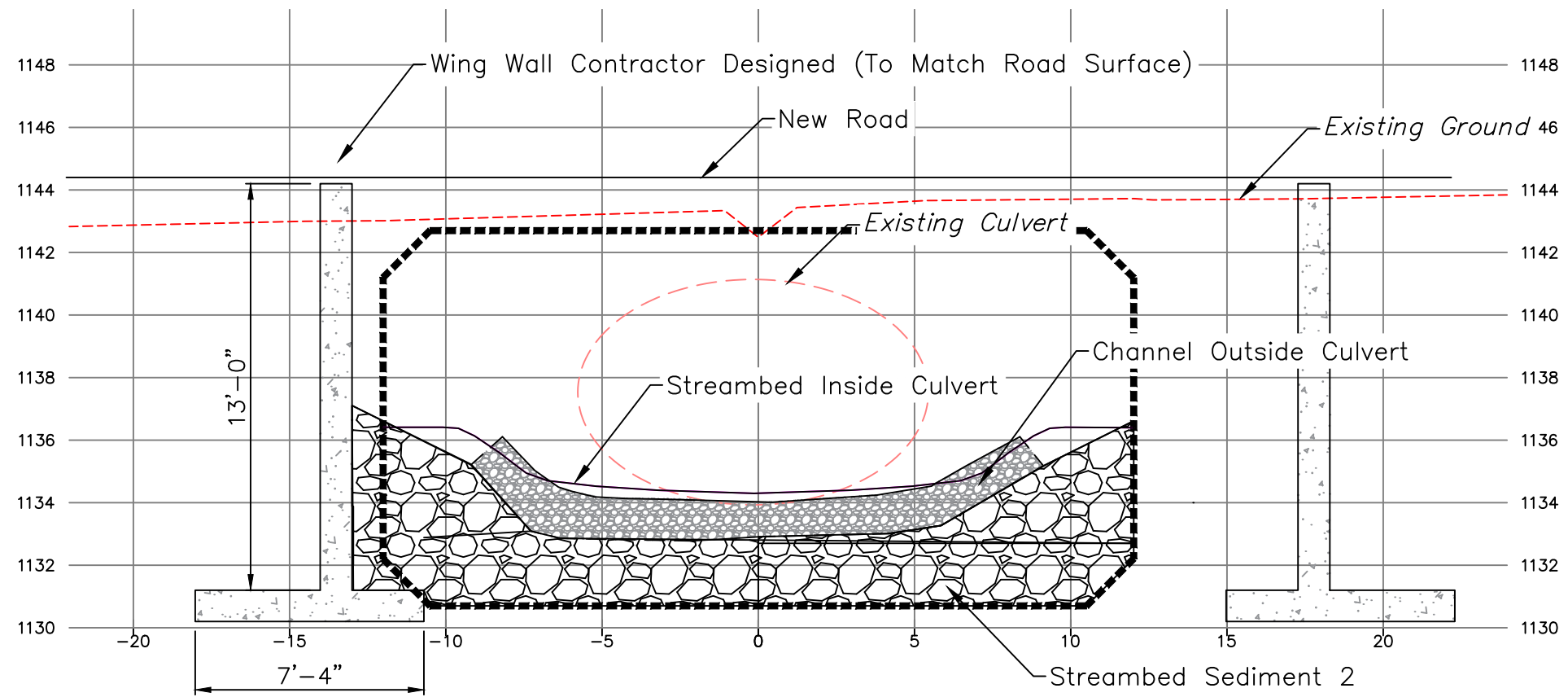
DESIGN BY:
Waterfall Engineering

DRAWN BY:

DATE:
3/12/22

Details

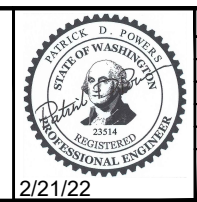
9 9
SHEET OF



D
4 9a
Stream Section STA 3+92 - View Upstream
Scale: 1" = 5'



Chumstick Creek Culvert RM 0.48 - Motteler Drive



REV	DATE	BY	APPD	DESCRIPTION

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DESIGN BY:
Waterfall Engineering

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DATE:
3/12/22

Sections

9a **9**
SHEET OF