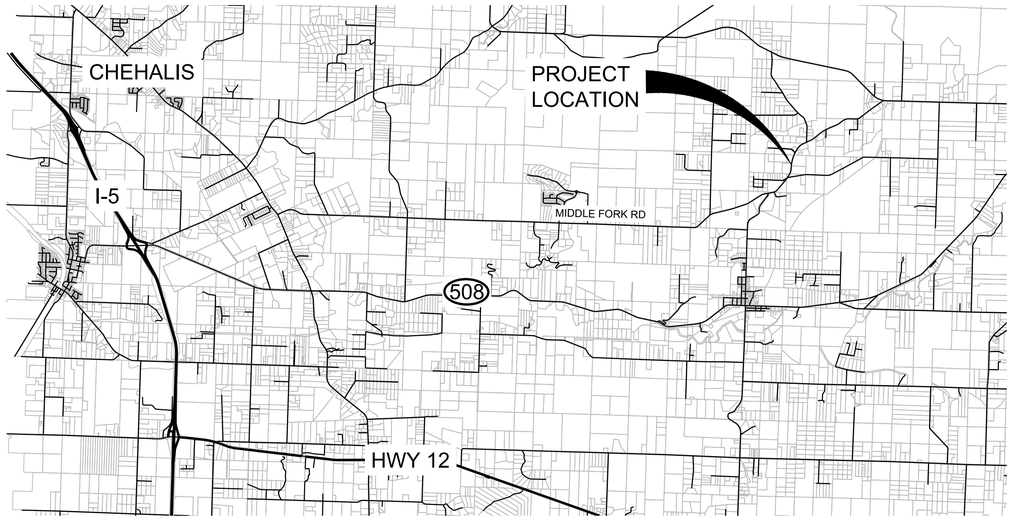
N½, SEC. 20, T13N, R1E

MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT

MP 7.07 OF MIDDLE FORK ROAD
LEWIS COUNTY PUBLIC WORKS



SITE VICINITY MAP
SCALE: 1" = 1 Mile (@ 22X34)

CONTACT INFORMATION:

OWNER:
LEWIS COUNTY PUBLIC WORKS
2025 NE KRESKY AVE
CHEHALIS, WA 98532
PHONE: (360) 740-1123
WWW.LEWISCOUNTYWA.GOV

CONTACT:
ANN WECKBACK
ENVIRONMENTAL PLANNER
E-MAIL: ANN.WECKBACK@LEWISCOUNTYWA.GOV

CIVIL ENGINEER:
PBS ENGINEERING + ENVIRONMENTAL
1180 NW MAPLE STREET, SUITE 160 ISSAQUAH, WA 98027
PHONE: (425) 654-8775
FAX: (866) 727-0140

DAVE SEGAL, PE
PROJECT MANAGER
E-MAIL: DAVE.SEGAL@PBSUSA.COM

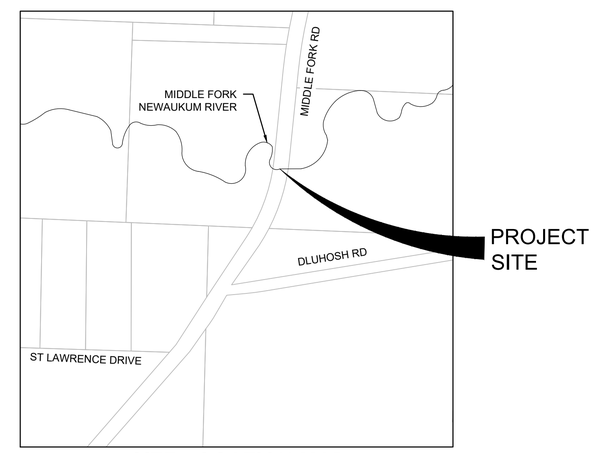
COMMISSIONERS:

EDNA FUND, DISTRICT 1
ROBERT C. JACKSON, DISTRICT 2
GARY STAMPER, DISTRICT 3

SURVEY CONTROL:
HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM - SOUTH ZONE, NAD 1983/91, RTK METHOD

VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD-88)

BASIS OF BEARING: WASHINGTON STATE PLANE COORDINATE SYSTEM - SOUTH ZONE, NAD 1983/91



SITE LOCATION MAP
SCALE: 1" = 300' (@ 22X34)

Sheet Index

SHT #	Category #	Sheet Title
1	G01	COVER SHEET
2	G02	LEGEND
3	EC01	APE AND STAGING AREA PLAN
4	EC02	TESC AND DEWATERING PLAN
5	C01	STREAM AND STRUCTURE PLAN AND PROFILE
6	C02	ROADWAY PLAN AND PROFILE
7	C03	ROADWAY PLAN AND PROFILE
8	C04	ROADWAY DETAILS
9	C05	ROADWAY SECTIONS
10	D01	DETAILS
11	D02	DETAILS
12	L01	PLANTING MITIGATION PLAN
13	L02	PLANTING MITIGATION NOTES
14	L03	PLANTING MITIGATION DETAILS

LEWIS COUNTY
DEPARTMENT OF PUBLIC WORKS
APPROVED FOR CONSTRUCTION:

Assistant County Engineer Date

100% Plans

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COVER SHEET
MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT
MP 7.07 OF MIDDLE FORK ROAD

811 Know what's below. Call before you dig.

DAVID A. SEGAL
STATE OF WASHINGTON
PROFESSIONAL ENGINEER
11/26/18

DESIGNED: TLF
CHECKED: DAS
NOVEMBER 2018
45013.000
SHEET ID
G01
SHEET 1 OF 14

Filename: L:\Projects\45000\45013\45013-00000004_Middle Fork Newaukum\Civil\CAD\Working\Sheets\45013.000-G01-G02.dwg Layout Tab: COVER SHEET User: Doug Ehlebracht CAD Plot Date/Time: 11/26/2018 4:26:28 PM

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Existing Linetype Legend	
Existing Right-of-way	
Existing Edge of Pavement	
Existing Centerline	
Existing Building	
Existing Grade Break	
Existing Edge of Shoulder	
Existing Fence	
Existing Wall	
Existing Lot Line	
Existing Contour	253
Existing Telephone Line	T T
Existing Overhead Power	OHP
Existing Wetland Boundary	
Existing Ordinary High Water	OHW OHW

Proposed/Future Linetype Legend	
Proposed Lot Line	
Proposed Flow Line	
Proposed Centerline	
Proposed Right-of-way	
Proposed Sawcut Line	
Proposed Edge of Shoulder	
Proposed Edge Of Pavement	
Proposed Paint Stripe	
Proposed Lath with Rag Tape	
Proposed Contour	253
Proposed Cut Limit	C C C
Proposed Fill Limit	F F F
Proposed Clear and Grub Limit	
Proposed High Visibility Silt Fence	
Area of Potential Effect	
Wattles	

Symbol Legend			
Existing Power Pole		Proposed Flow Arrow	
Existing Power Meter		Proposed Bypass Culvert Pipe	
Existing Guy Anchor			
Existing Project Bench Mark			
Existing Fence Post			
Existing Sign			
Existing Shrub			
Existing Deciduous Tree			
Existing Coniferous Tree			
Existing Fruit Tree			
Existing Flow Arrow			

Abbreviation Legend			
Acres	AC	Invert Elevation	IE
Catch Basin	CB	Maximum	MAX
Cubic Feet	CF	Minimum	MIN
Centerline	℄	Number	No. or #
Compaction	COMP	Ordinary High Water	OHW
Concrete	CONC	Overhead Power	OHP
Construction	CONST	Point Of Curve	PC
Cubic Yard	CY	Point Of Tangent	PT
Diameter	DIA	Point Of Vertical Intersection	PVI
Edge Of Pavement	EOP	Right Of Way	ROW
Elevation	EL	Sheet	SHT
Existing	EXIST	Station	STA
Finished Grade	FG	Standard	STD
Foot / Feet	FT	Storm	STM
		Telephone	TEL
		Temporary	TEMP
		Typical	TYP

Hatching Legend
Proposed Hot Mixed Asphalt
Proposed Bypass Road
Proposed Construction Entrance
Proposed Bank Protection
Bypass Road to Remain in Place

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COVER SHEET

MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT

MP 7.07 OF MIDDLE FORK ROAD

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DAVID A. SEBAHI STATE OF WASHINGTON 39913 REGISTERED PROFESSIONAL ENGINEER 11/26/18

DESIGNED: TLF
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NOVEMBER 2018
45013.000

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G02

CONSTRUCTION PLAN NOTES:

1. STAGING AND STOCKPILING AREA
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE (AS NEEDED)
3. AREA OF POTENTIAL EFFECT
4. CLEAR AND GRUB LIMIT
5. INSTALL HIGH VISIBILITY SILT FENCE
6. INSTALL 4' X 1-½" X ½" LATH WITH RAG TAPE, 10' O.C. (BY LEWIS COUNTY)

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APE AND STAGING AREA PLAN

MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT

MP 7.07 OF MIDDLE FORK ROAD

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DAVID A. SMITH, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER, 11/26/18

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EC01

SHEET 3 OF 14

Filename: L:\Projects\45000\45013\45013-000\0004_Middle Fork Newaukum\Civil\CAD\Working\Sheets\45013.000-EC01.dwg Layout Tab: APE PLAN User: Doug Ehlebracht CAD Plot Date/Time: 11/26/2018 4:27:20 PM

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CONSTRUCTION PLAN NOTES:

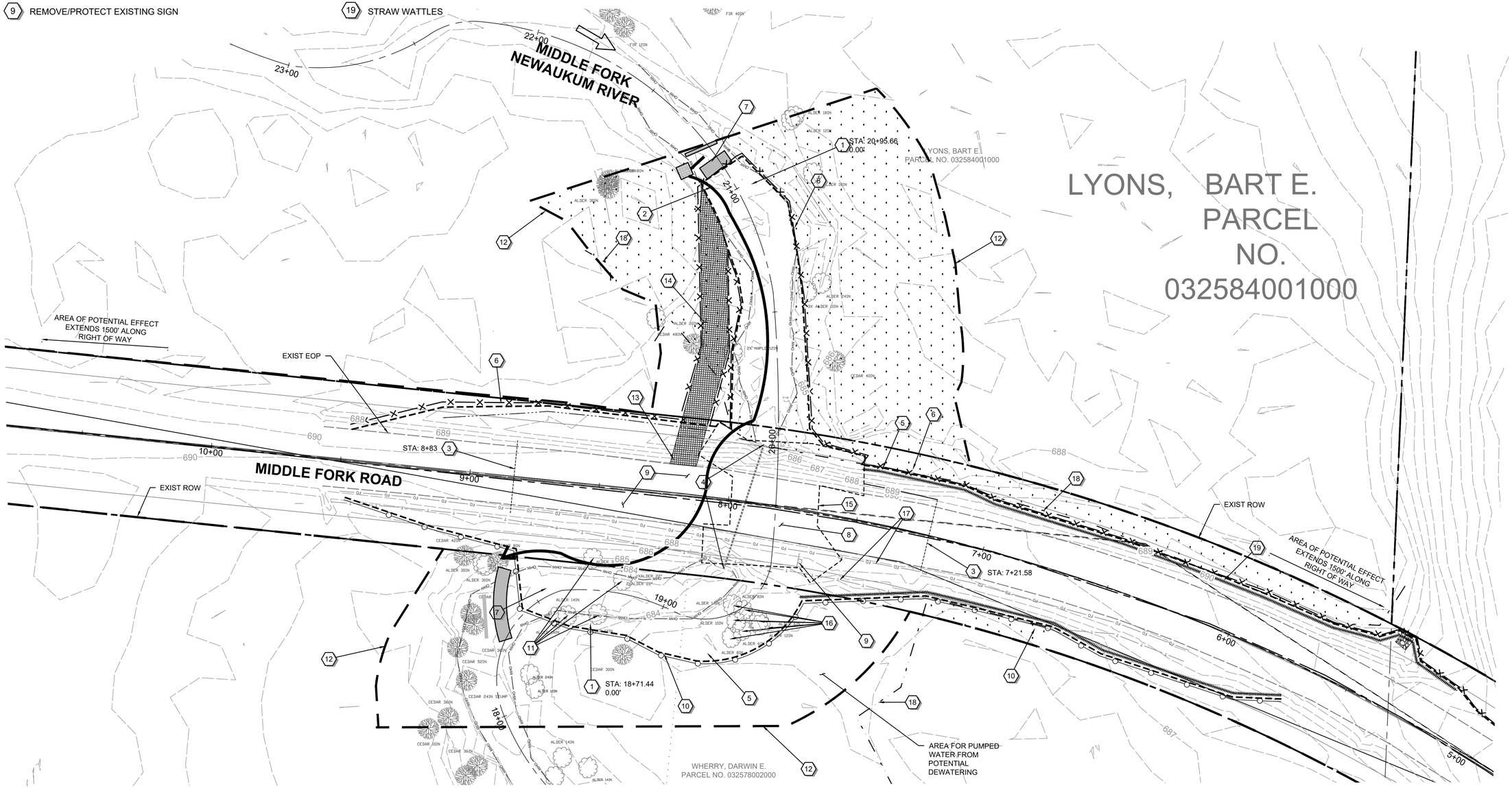
1. INSTALL COFFERDAM AS STAKED IN THE FIELD BY THE ENGINEER
2. INSTALL SPILL CONTAINED PUMP SYSTEM WITH WDFW APPROVED PUMP SCREENS AT INLET AND OUTLET
3. SAWCUT AND REMOVE HMA
4. REMOVE EXISTING 60-INCH CMP CULVERT
5. CLEAR AND GRUB LIMIT
6. INSTALL 4' x 1-½" x ½" LATH WITH RAG TAPE, 10' O.C. (BY LEWIS COUNTY)
7. INSTALL WDFW APPROVED FISH EXCLUSION SCREEN AT 45° ANGLE TO CHANNEL
8. EXCAVATE TO SUBGRADE FOR PROPOSED BOX CULVERT AND WALL FOUNDATION
9. REMOVE/PROTECT EXISTING SIGN
10. INSTALL HIGH VISIBILITY SILT FENCE
11. TREES TO BE PROTECTED
12. AREA OF POTENTIAL EFFECT
13. BYPASS PUMP LINE (APPROXIMATE LOCATION SHOWN - ADJUST TO SUIT CONSTRUCTION SEQUENCING)
14. INSTALL 10' SWAMP MAP OR APPROVED EQUAL FOR WETLAND ACCESS PATH
15. STRUCTURE EXCAVATION NEAT LINE
16. TREES TO BE REMOVED
17. UTILITIES TO BE RELOCATED
18. WETLAND BOUNDARY
19. STRAW WATTLES

GENERAL NOTES:

1. SEE DWG EC01 FOR STAGING AREA AND APE LIMITS.
2. FOR SWAMP MAT MINOR TRIMMING OR MOWING CAN OCCUR BUT NO ROOT OR GROUND DISTURBANCE.

Scale 1" = 20'

0 10 20 40



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TESC AND DEWATERING PLAN
MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT
MP 7.07 OF MIDDLE FORK ROAD

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DAVID A. SEBEL, STATE OF WASHINGTON, 39013, REGISTERED PROFESSIONAL ENGINEER, 11/26/18

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NOVEMBER 2018
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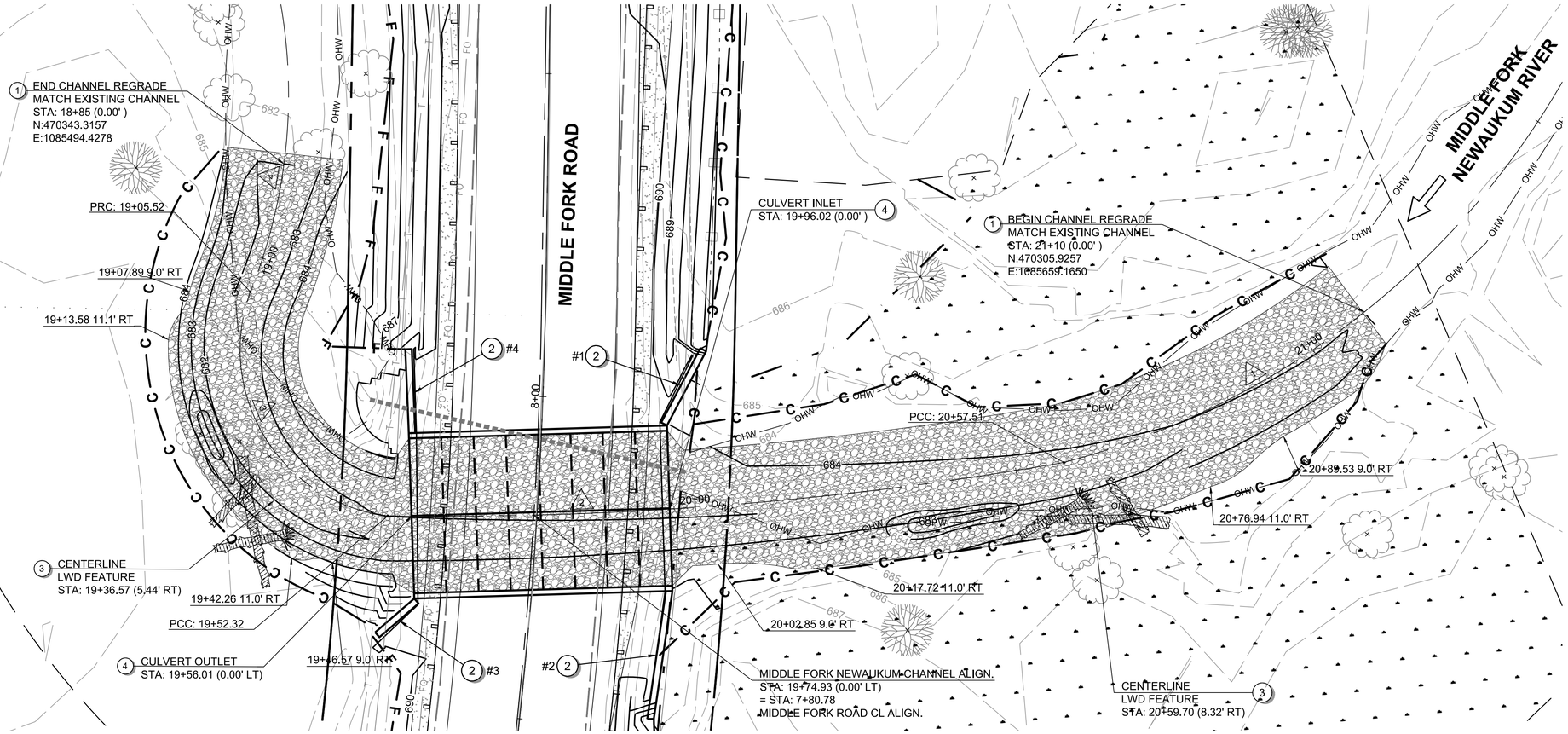
SHEET 4 OF 14



CONSTRUCTION PLAN NOTES:

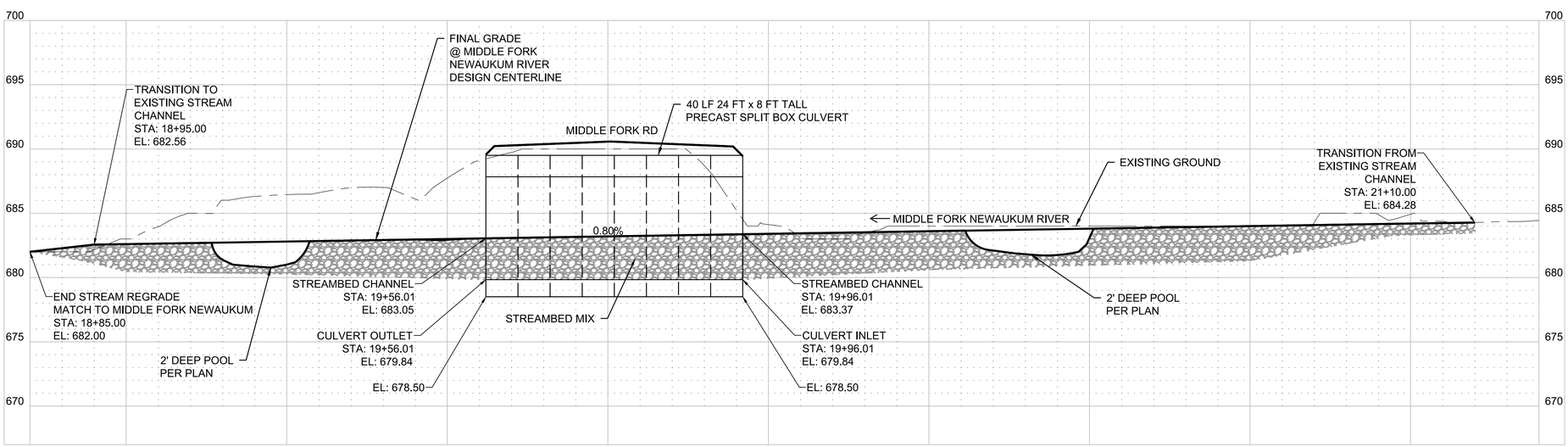
1. RECONSTRUCT CREEK CHANNEL PER DETAIL, SEE DWG D02
2. INSTALL PRECAST CONCRETE WINGWALL PER DETAIL, SEE DWG D01
3. INSTALL LARGE WOODY DEBRIS FEATURES PER DETAIL, SEE DWG D02
4. INSTALL 40 LF 24-FT x 8-FT SPLIT BOX CULVERT. PER DETAIL, SEE DWG D01

GENERAL NOTES:

1. THALWEG AND WOODY DEBRIS ARE TO BE PLACED AS SHOWN ON PLANS AS DIRECTED BY THE ENGINEER.
2. LWD STRUCTURE LOCATION IS MEASURED FROM CENTER OF KEY LOG TO STREAM CENTERLINE. SEE DWG D02 FOR MORE DETAILS.

CENTERLINE CURVE DATA

#	Δ	R	L	T
1	75°37'10"	125.83	166.08	97.64
2	10°44'45"	560.84	105.19	52.75
3	103°24'11"	25.93	46.80	32.84
4	31°58'45"	81.61	45.55	23.39



SCALE
H: 1" = 10'
V: 1" = 5'

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STREAM AND STRUCTURE PLAN AND PROFILE

MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT

MP 7.07 OF MIDDLE FORK ROAD

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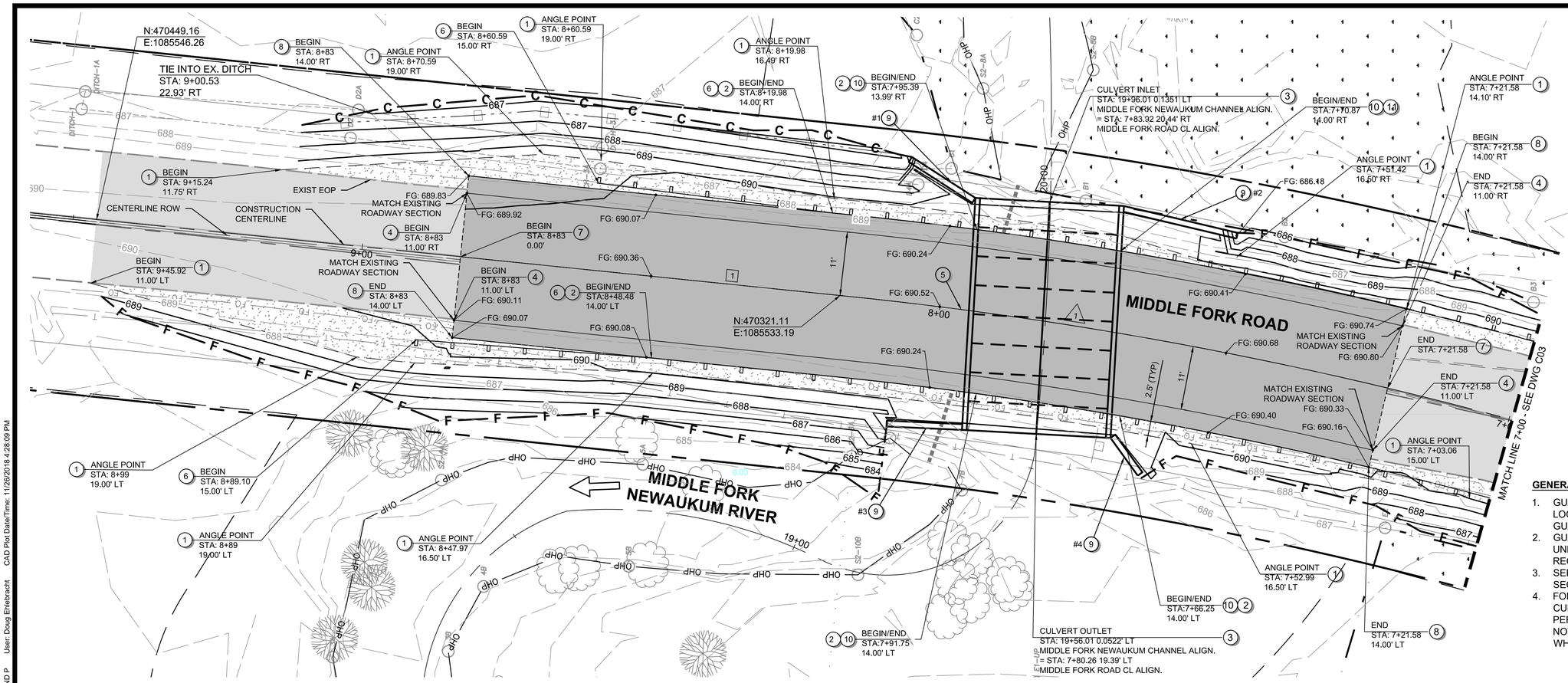
C01

SHEET 5 OF 14



GENERAL NOTES:

1. GUARDRAIL STATION OFFSET LOCATIONS ARE TO FACE OF GUARDRAIL W-BEAM.
2. GUARDRAIL POSTS ARE STEEL UNLESS OTHERWISE NOTED OR REQUIRED IN THE STANDARD PLANS.
3. SEE DWG C04 FOR TYPICAL ROAD SECTION.
4. FOR GUARDRAIL POST ABOVE CULVERT, USE TYPE 31 STEEL POST PER WSDOT STD PLAN C-20.41-01. DO NOT AFFECT STEEL REINFORCING WHEN DRILLING FOR ANCHORS.

CONSTRUCTION PLAN NOTES:

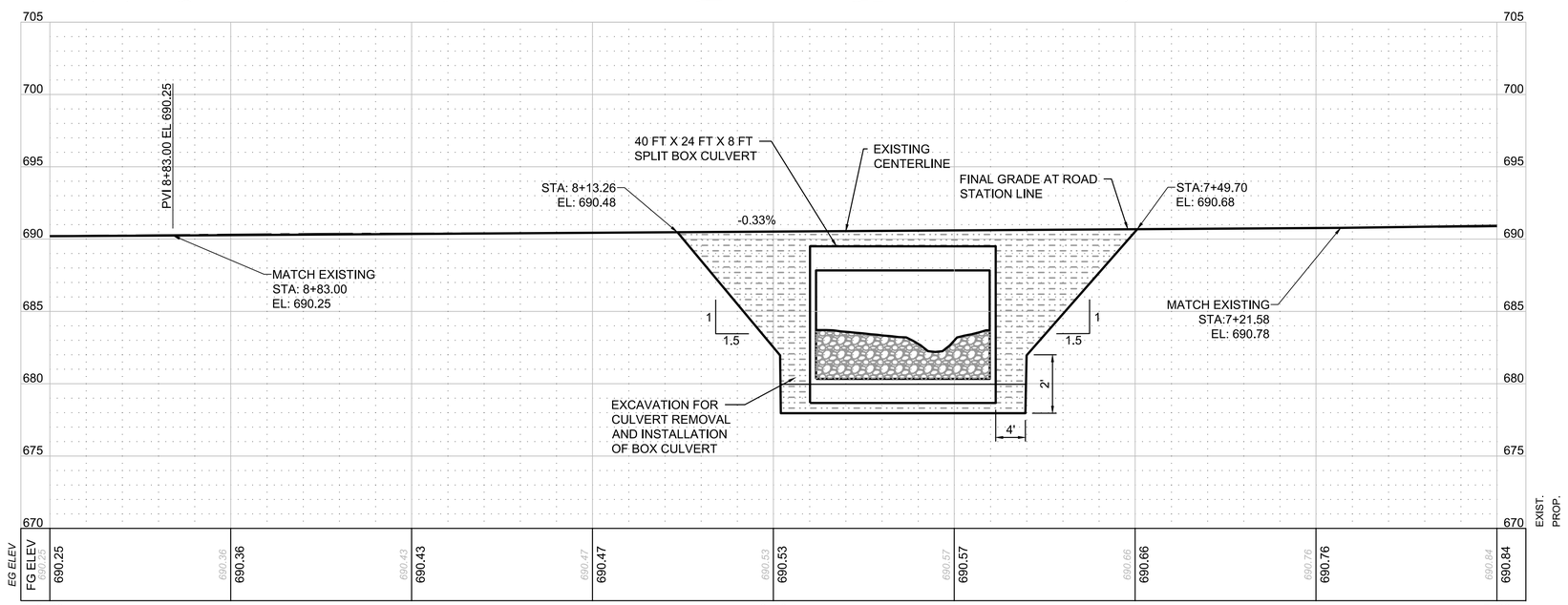
1. SHOULDER WIDENING
2. BEAM GUARDRAIL TYPE 31, PER WSDOT STD PLAN C-20.10-04 WITH 6' POSTS
3. 40-LF PRECAST SPLIT BOX CULVERT PER DETAIL, SEE DWG D01
4. PAINT LINE (WHITE)
5. PAINT LINE (DOUBLE CENTER YELLOW)
6. BEAM GUARDRAIL TYPE 31 SKT-SP-MGS (TL-2) NON-FLARED TERMINAL PER WSDOT STD PLAN C-22.45-03
7. HMA PAVEMENT (SEE SECTION DETAIL, DWG DO1)
8. SAWCUT
9. CONCRETE WINGWALL
10. BOX CULVERT GUARDRAIL STEEL POST TYPE 31, PER WSDOT STD PLAN C-20.41-01
11. BEAM GUARDRAIL TYPE 31, PER WSDOT STD PLAN C-20.10-04 WITH 8' POSTS

CENTERLINE LINE DATA

#	Length	Direction
1	128.63	N05° 49' 39.17"E

CENTERLINE CURVE DATA

#	Δ	R	L	T
1	27°01'49"	715.00	345.45	171.86



SCALE
H: 1" = 10'
V: 1" = 5'

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ROADWAY PLAN AND PROFILE
MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT
MP 7.07 OF MIDDLE FORK ROAD

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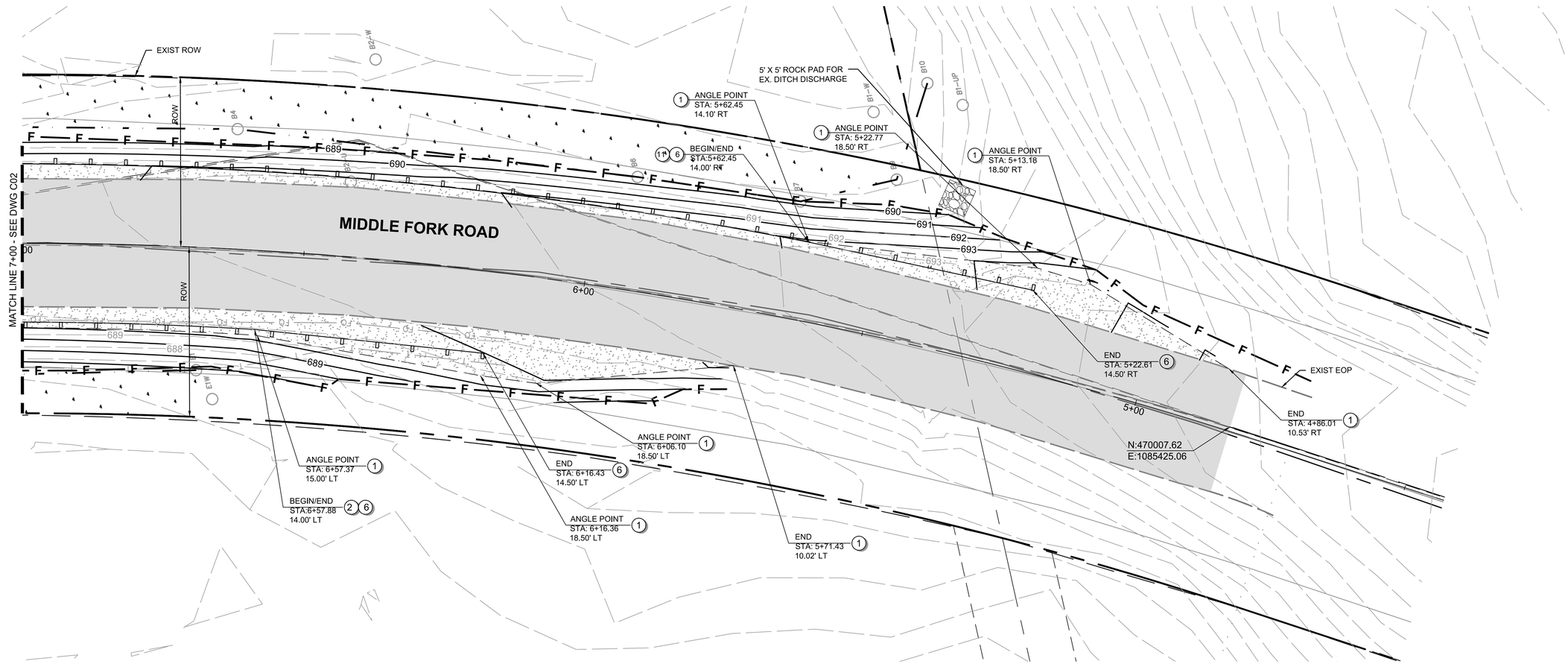

Scale 1" = 10'

0 5 10 20

CONSTRUCTION PLAN NOTES:

1. SHOULDER WIDENING
2. BEAM GUARDRAIL TYPE 31, PER WSDOT STD PLAN C-20.10-04 WITH 6' POSTS
6. BEAM GUARDRAIL TYPE 31 SKT-SP-MGS (TL-2) NON-FLARED TERMINAL PER WSDOT STD PLAN C-22.45-03
11. BEAM GUARDRAIL TYPE 31, PER WSDOT STD PLAN C-20.10-04 WITH 8' POSTS

100% Plans

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ROADWAY PLAN AND PROFILE

MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT

MP 7.07 OF MIDDLE FORK ROAD

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C03

SHEET 7 OF 14

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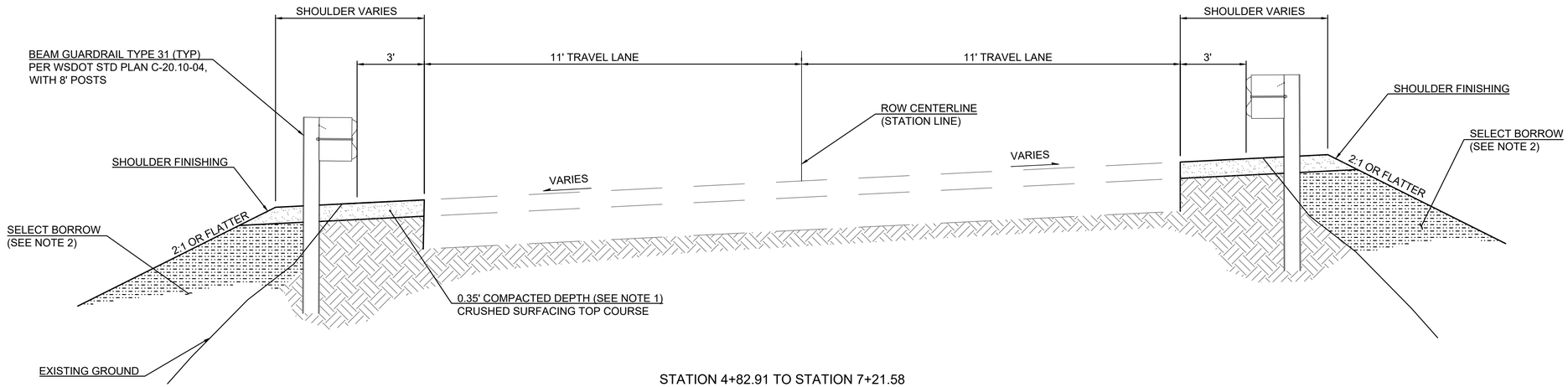
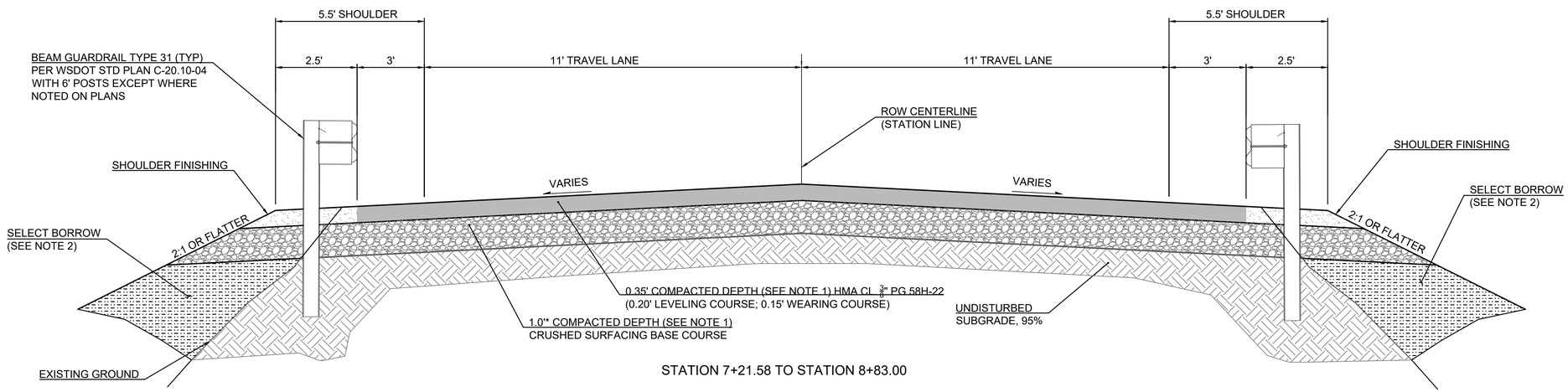


STATION 4+82.91 TO STATION 7+21.58
STATION 8+83.00 TO STATION 9+28.60



STATION 7+21.58 TO STATION 8+83.00

1 TYPICAL ROAD RESTORATION SECTION

NOT TO SCALE

NOTES:

1. APPROXIMATE COMPACTED DEPTH. MATCHING EXISTING, TWO EQUAL LIFTS
2. BENCH INTO EXISTING SIDE SLOPE PER WSDOT STANDARD SPECIFICATION 2-03.3(14).
3. USE 6' LENGTH STEEL POSTS FOR GUARDRAIL POST AS SHOWN ON SHEET C02.
4. FOR GUARDRAIL POSTS ABOVE CULVERT, USE TYPE 31 STEEL POSTS PER WSDOT STD PLAN C-20.41-01.

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ROADWAY DETAILS
MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT
MP 7.07 OF MIDDLE FORK ROAD

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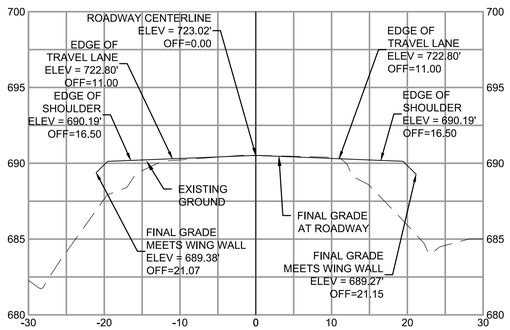
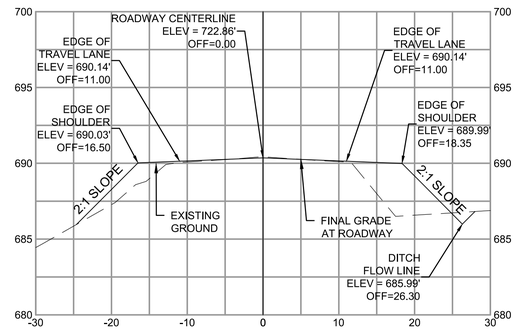


STA: 8+00



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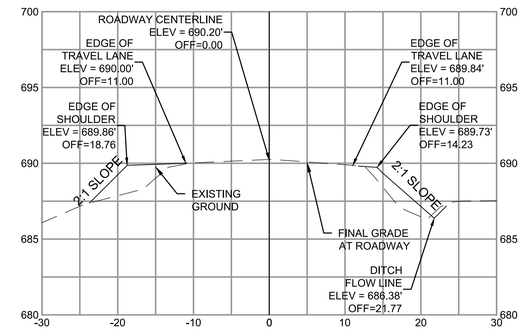

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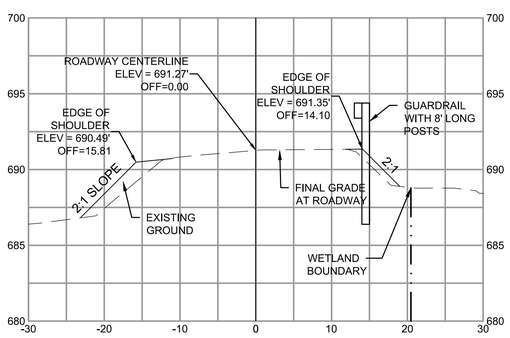

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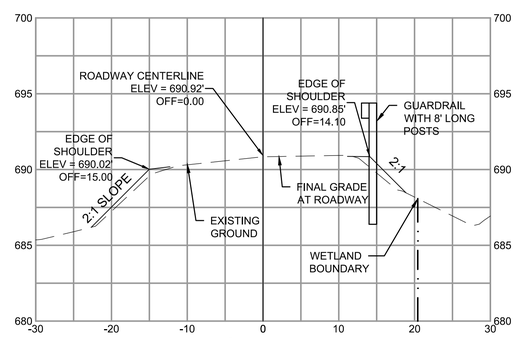
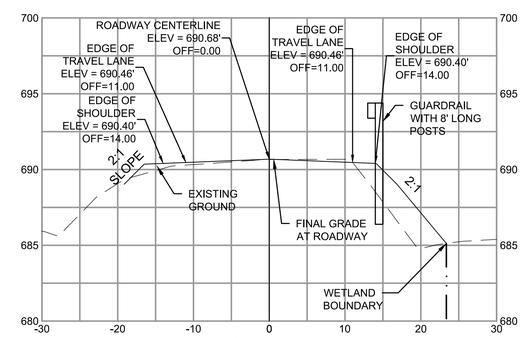


STA: 7+00



STA: 7+50

2 ROADWAY CROSS SECTIONS

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ROADWAY SECTIONS
MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT
MP 7.07 OF MIDDLE FORK ROAD

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C05
SHEET 9 OF 14

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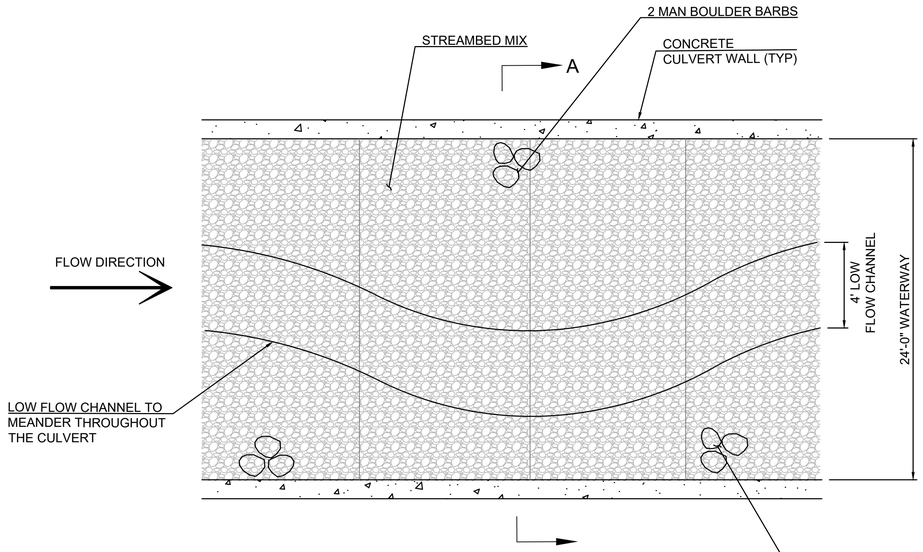
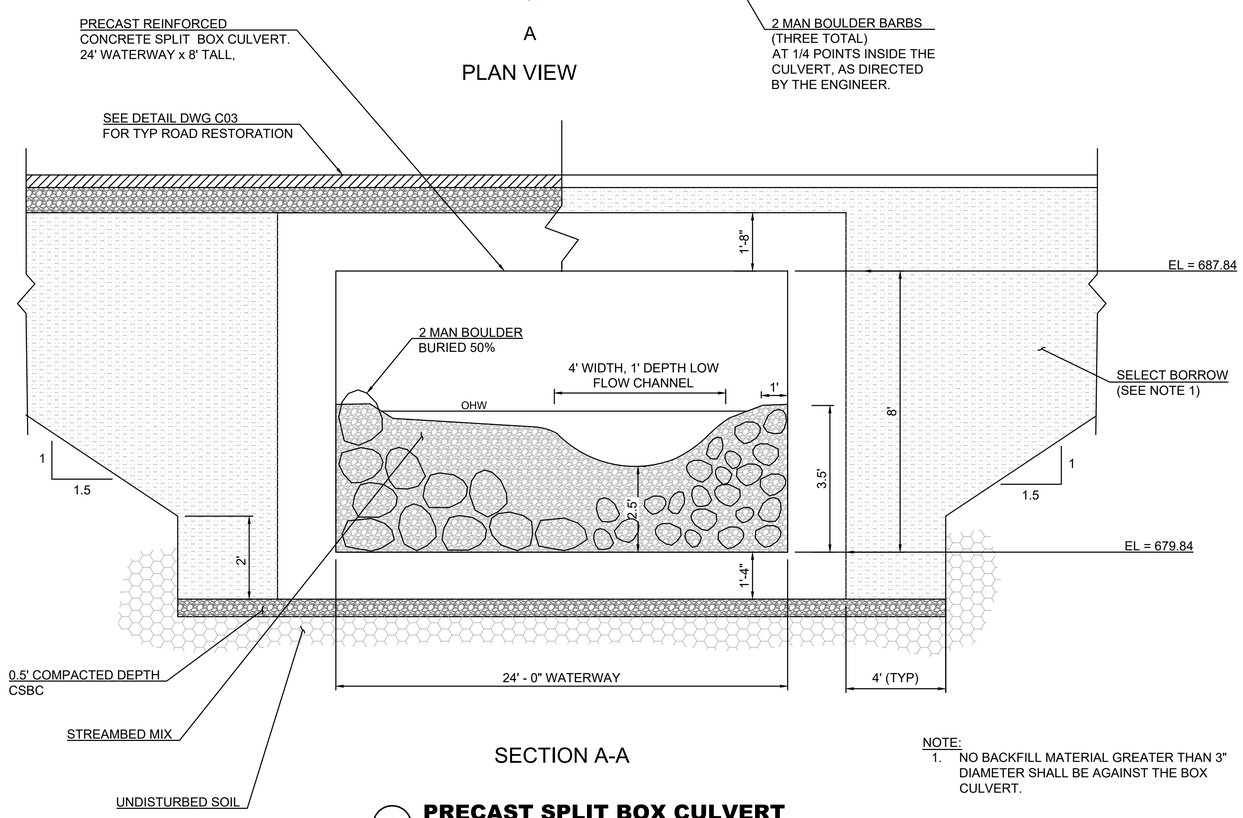


PLAN VIEW

GENERAL NOTES:

1. LARGE WOODY DEBRIS FEATURES AND THALWEG LOCATIONS ARE TO BE PLACED AS SHOWN ON PLANS. MINOR CHANGES TO THE WOOD FEATURES CAN BE MADE IN THE FIELD BY THE ENGINEER.
2. STREAMBED MIX: 12" STREAMBED COBBLES SHALL BE MIXED THOROUGHLY WITH STREAMBED SEDIMENT AT A 1:1 RATIO. TWO-MAN STREAMBED BOULDERS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
3. STREAMBED SEDIMENT IS TO PROVIDE STABILITY TO THE STREAMBED MIX AND BE PLACED IN AREA OF VOIDS TO CREATE A UNIFORM, NON-POROUS BED.

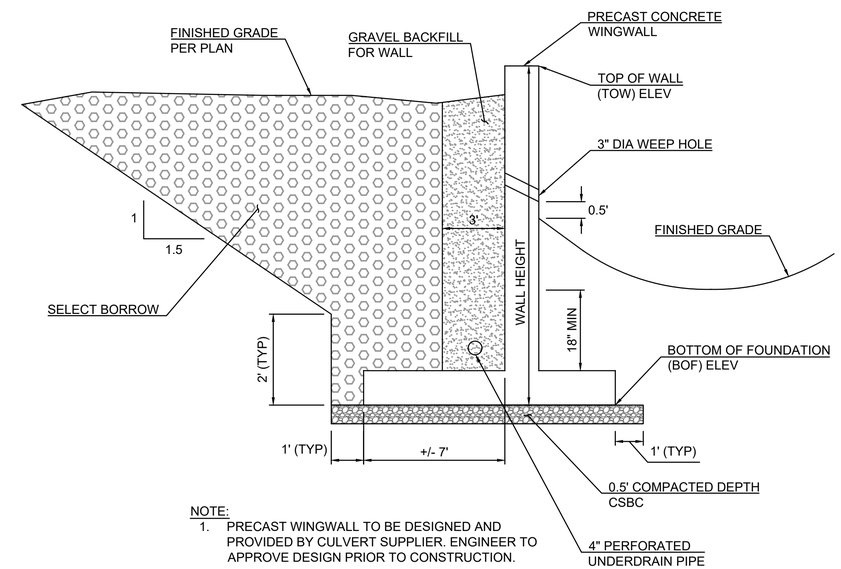


SECTION A-A

NOTE:
1. NO BACKFILL MATERIAL GREATER THAN 3" DIAMETER SHALL BE AGAINST THE BOX CULVERT.

1 PRECAST SPLIT BOX CULVERT

NOT TO SCALE



NOTE:
1. PRECAST WINGWALL TO BE DESIGNED AND PROVIDED BY CULVERT SUPPLIER. ENGINEER TO APPROVE DESIGN PRIOR TO CONSTRUCTION.

2 PRECAST CONCRETE WINGWALL

NOT TO SCALE

WINGWALL TABLE

WINGWALL NO.	LENGTH (FT)	ANGLE TO CULVERT (DEGREES)	BEGIN HEIGHT (FT)	END HEIGHT (FT)	BOF ELEV
1 (NE)	13	150	11.00	8.50	678.51
2 (SE)	20	170	11.00	8.50	678.51
3 (NW)	13	180	11.00	10.00	678.51
4 (SW)	8	129	11.00	10.00	678.51

* HEIGHT OF WALL INCLUDES ASSUMED 16" THICK FOOTING

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DETAILS
MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT
MP 7.07 OF MIDDLE FORK ROAD

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Filename: L:\Projects\45000\45013\45013-000\0004_Middle Fork Newaukum\Civil\CAD\Working\Sheets\45013.000-D01-D02.dwg Layout Tab: D01 User: Doug Ehlebracht CAD Plot Date/Time: 11/26/2018 4:26:49 PM

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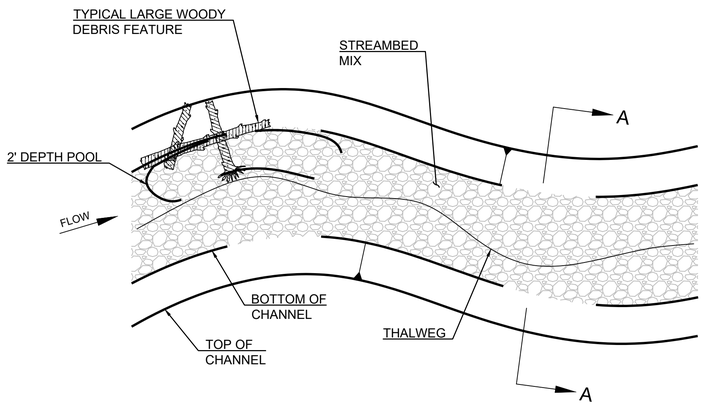
LARGE WOODY DEBRIS CONTROL TABLE		
LWD FEATURE STATION	LOGS*	VOLUME (FT^3)
19+36.57	1,2,3	119.0
20+60.11	1,2,3	119.0

* SEE LOG SCHEDULE TO THE RIGHT

LOG SCHEDULE					
LOG #	LOG LENGTH (FT)	LOG DIAMETER (FT)	ROOTWAD LENGTH (FT)	ROOTWAD DIAMETER (FT)	VOLUME (FT^3)
1*	20	2	-	-	62.8
2	15	1.5	2	3	35.0
3	12	1.5	-	-	21.2

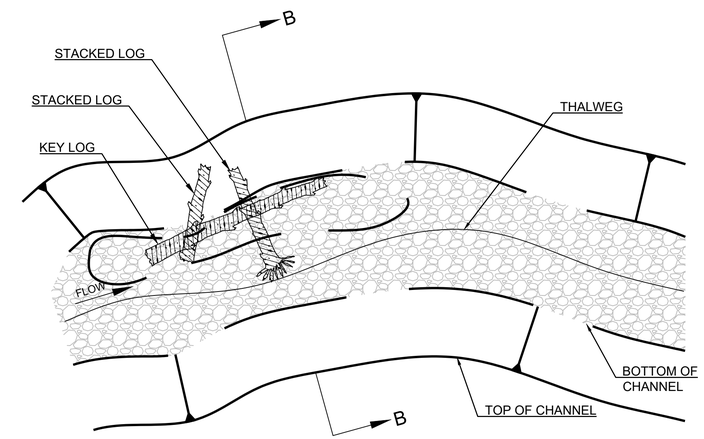
* KEY LOG (VOLUME > 35 FT^3)



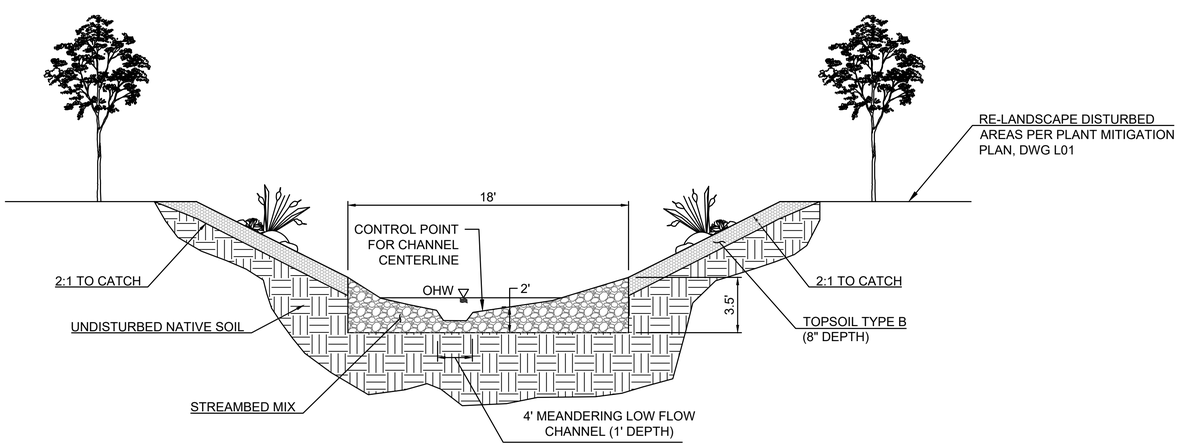
CHANNEL PLAN

GENERAL NOTES:

1. LARGE WOODY DEBRIS FEATURES AND THALWEG LOCATIONS ARE TO BE PLACED AS SHOWN ON PLANS. MINOR CHANGES TO THE WOOD FEATURES CAN BE MADE IN THE FIELD BY THE ENGINEER.
2. STREAMBED MIX: 12" STREAMBED COBBLES SHALL BE MIXED THOROUGHLY WITH STREAMBED SEDIMENT AT A 1:1 RATIO. TWO-MAN STREAMBED BOULDERS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
3. STREAMBED SEDIMENT IS TO PROVIDE STABILITY TO THE STREAMBED MIX AND BE PLACED IN AREA OF VOIDS TO CREATE A UNIFORM, NON-POROUS BED.
4. SEE PLANT MITIGATION PLANS ON DWG L01 FOR FINAL STABILIZATION REQUIREMENTS.



TYPICAL LARGE WOODY DEBRIS PLAN



CHANNEL SECTION A-A

1 **MIDDLE FORK NEWAUKUM CHANNEL**
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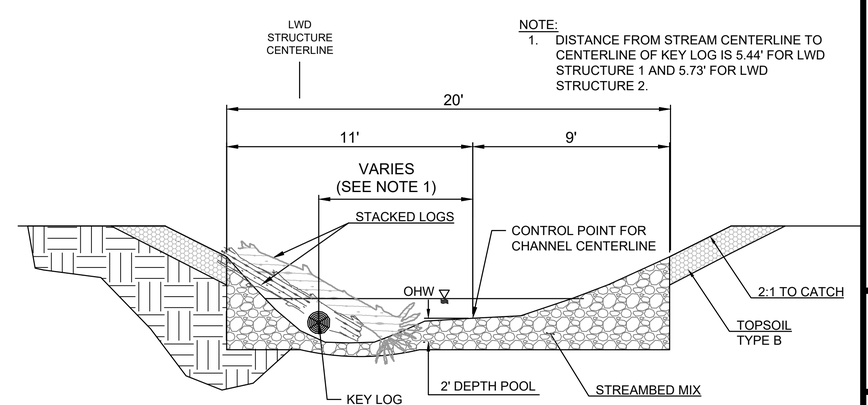

NOTE:
1. DISTANCE FROM STREAM CENTERLINE TO CENTERLINE OF KEY LOG IS 5.44' FOR LWD STRUCTURE 1 AND 5.73' FOR LWD STRUCTURE 2.

TYPICAL LARGE WOODY DEBRIS SECTION B-B

2 **TYPICAL LARGE WOODY DEBRIS FEATURE**
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DETAILS
MIDDLE FORK NEWAUKUM FISH PASSAGE PROJECT
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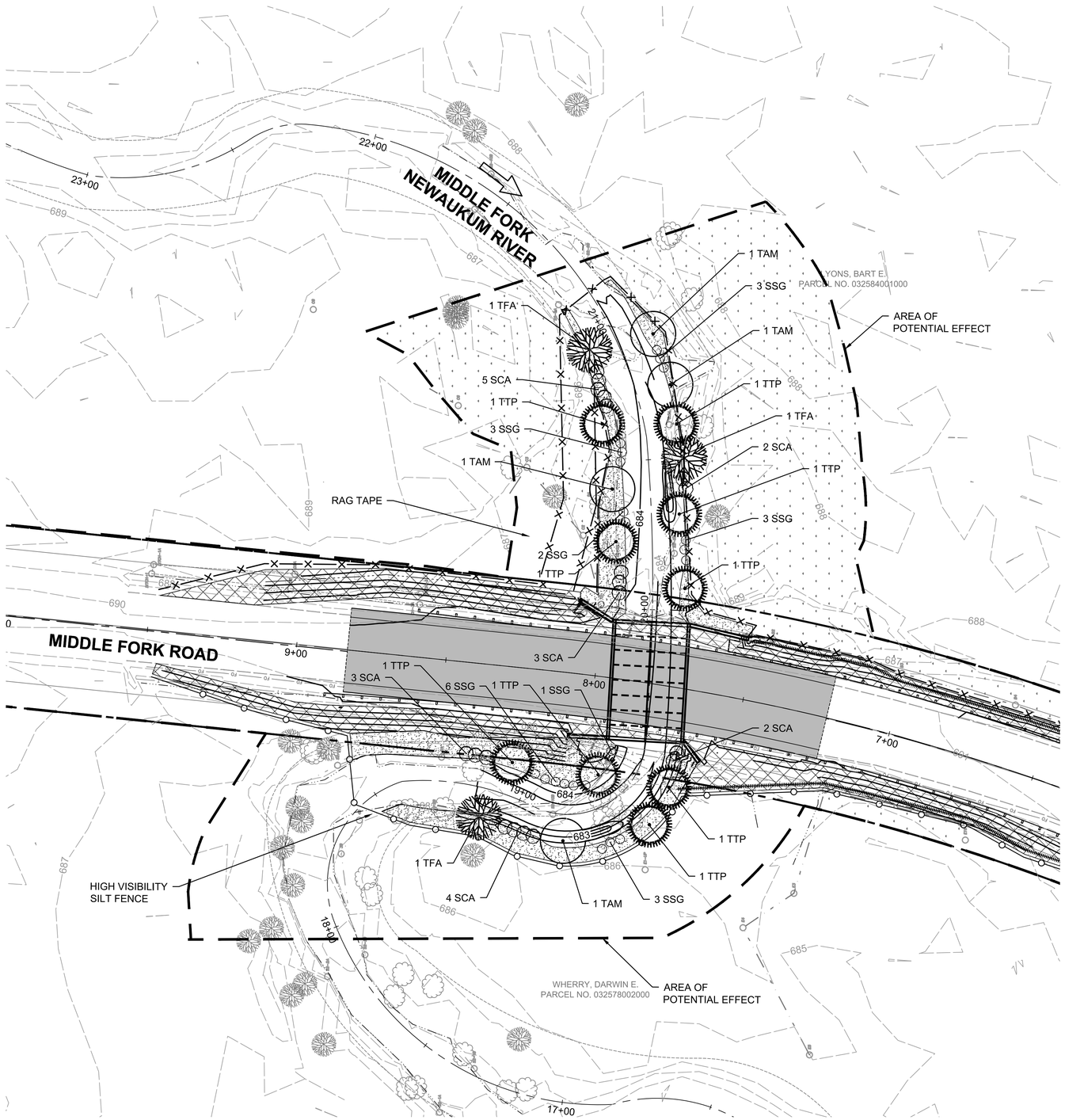
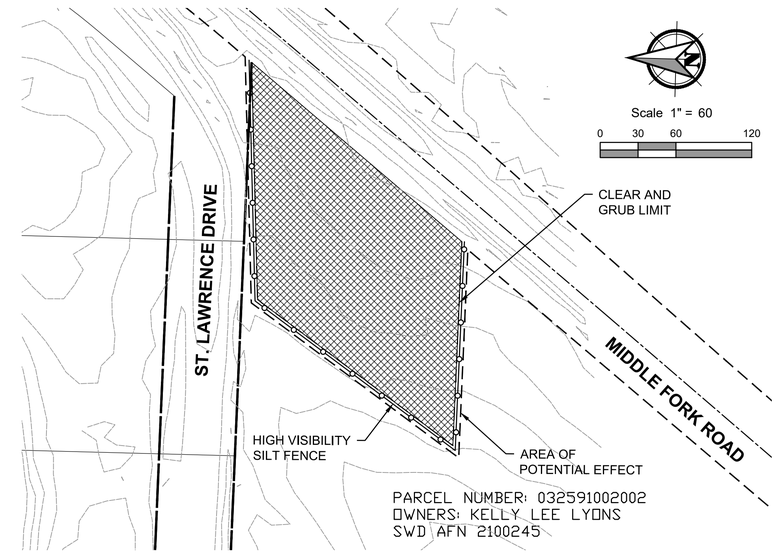


Scale 1" = 20'

0 10 20 40

PLANTING MITIGATION NOTES:

1. FOR PLANT SEE SHEET L02.
2. FOR PLANTING DETAILS SEE SHEET L03.
3. DO NOT USE ANY NON-ORGANIC OR CHEMICAL FERTILIZERS WITH ANY PLANTING INSTALLATION FOR THIS PROJECT.
4. ALL EXISTING PLANT MATERIAL IS TO BE PROTECTED DURING CONSTRUCTION. ANY TREES DAMAGED DUE TO CONSTRUCTION ACTIVITIES ARE TO BE REPLACED.



Scale 1" = 60

0 30 60 120

PLANTING MITIGATION PLAN FOR STAGING AND STOCKPILING AREA

LEGEND:

- TTP — *THUJA PLICATA* — WESTERN RED CEDAR
- TAM — *ACER MACROPHYLLUM* — BIGLEAF MAPLE
- TFA — *FRAXINUS LATIFOLIA* — OREGON ASH
- SSG — *SALIX GEYERIANA* — GEYER WILLOW
- SCA — *CORNUS ALBA* — REDOSIER DOGWOOD
- DISTURBED AREA ABOVE THE ORDINARY HIGH WATER MARK
- DISTURBED AREA FROM GRADING AND CONSTRUCTION ACTIVITIES

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GENERAL NOTES:

1. REFER TO CIVIL ENGINEER'S DRAWINGS FOR UTILITY INFORMATION; INCLUDING STORM DRAIN, SEWER, WATER, ELECTRICAL, GAS, TELEPHONE AND CABLE.

2. REFER TO COUNTY STANDARD PLANS AND SPECIFICATIONS WHERE APPLICABLE.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH ALL CONSTRUCTION OPERATIONS. ALL PIPING, CONDUIT, SLEEVES, ETC., SHALL BE SET IN PLACE PRIOR TO INSTALLATION OF IRRIGATION AND PLANTING CONSTRUCTION ITEMS.

4. CONTRACTOR SHALL BE RESPONSIBLE TO CONSULT WITH COUNTY REPRESENTATIVE, APPROPRIATE AGENCIES AND PLANS, FOR THE LOCATIONS OF ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ALL DAMAGES CAUSE AS A RESULT OF THEIR WORK.

5. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT OBSTRUCTIONS, AREA DISCREPANCIES AND/OR GRADE DIFFERENCE EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATIONS.

PLANTING NOTES:

INSTALLATION:

1. THE CONTRACTOR SHALL INSTALL PLANTINGS ACCORDING TO THESE PLANS, DETAILS, AND THE SPECIFICATIONS.

2. VERIFY LOCATIONS OF ALL PERTINENT SITE IMPROVEMENTS UNDER OTHER SECTIONS. IF ANY PART OF THIS PLAN CANNOT BE FOLLOWED DUE TO SITE CONDITIONS, CONTACT THE OWNER'S AUTHORIZED REPRESENTATIVE FOR INSTRUCTION PRIOR TO COMMENCING WORK.

3. EXACT LOCATIONS OF PLANT MATERIALS SHALL BE REVIEWED BY THE OWNER'S AUTHORIZED REPRESENTATIVE IN THE FIELD PRIOR TO INSTALLATION. OWNER'S AUTHORIZED REPRESENTATIVE RESERVES THE RIGHT TO ADJUST PLANTS TO EXACT LOCATION IN THE FIELD.

4. ALL PLANTS SHALL BE GROWN FOR THIS REGION OR SHALL BE ADEQUATELY CLIMATIZED.

5. DO NOT MAKE SUBSTITUTIONS. IF SPECIFIED PLANTING MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON-AVAILABILITY FROM AT LEAST FIVE (5) SOURCES TO THE COUNTY LANDSCAPE ARCHITECT, TOGETHER WITH THE PROPOSAL FOR USE OF EQUIVALENT MATERIAL FOR FINAL APPROVAL.

6. CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE FOR PLANT MATERIAL INSPECTION PRIOR TO INSTALLATION.

7. CONTRACTOR SHALL REPAIR OR REPLACE ANY EXISTING LANDSCAPE AFFECTED BY CONSTRUCTION TO IT'S ORIGINAL CONDITION. CONTACT LANDSCAPE ARCHITECT IF ANY AREAS NOT ORIGINALLY LANDSCAPED, BECOME LANDSCAPE.

8. ALL PLANTS SHALL BE PER WSDOT STANDARD PLAN H-10.10-00

PLANTING LIST, SPECIFICATIONS, AND DETAILS:
PLANTING LIST IS ON THIS SHEET.
FOR PLANTING DETAILS SEE SHEET L03.
FOR PLANTING SPECIFICATIONS SEE ASSOCIATED SPECIAL PROVISIONS.

TREE PROTECTION STANDARDS:

PLACING MATERIAL NEAR TREES:
NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE PROTECTED AREA OF ANY TREE DESIGNATED TO REMAIN, INCLUDING, BUT NOT LIMITED TO, PARKING EQUIPMENT, PLACING SOLVENTS, STORING BUILDING MATERIAL AND SOIL DEPOSITS, DUMPING CONCRETE WASHOUT AND LOCATING BURN HOLES. DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY OBJECT TO ANY TREE DESIGNATED FOR PROTECTION.

PROTECTIVE BARRIER:
BEFORE DEVELOPMENT, LAND CLEARING, FILLING OR ANY LAND ALTERATION FOR WHICH A TREE REMOVAL PERMIT IS REQUIRED, THE APPLICANT SHALL:

ERECT AND MAINTAIN A READILY VISIBLE PROTECTIVE TREE FENCE ALONG THE OUTER EDGE AND COMPLETELY SURROUNDING THE PROTECTED AREA OF ALL PROTECTED TREES OR GROUPS OF TREES. FENCES SHALL BE CONSTRUCTED OF CHAIN LINK AND AT LEAST FOUR FEET HIGH, UNLESS OTHER TYPE OF FENCING IS AUTHORIZED BY THE ENGINEER.

PROHIBIT EXCAVATION OR COMPACTION OF EARTH OR OTHER POTENTIALLY DAMAGING ACTIVITIES WITHIN THE BARRIERS.

MAINTAIN THE PROTECTIVE BARRIERS IN PLACE UNTIL THE ENGINEER AUTHORIZES THEIR REMOVAL OR A FINAL CERTIFICATE OF OCCUPANCY IS ISSUED, WHICHEVER OCCURS FIRST.

ENSURE THAT ANY LANDSCAPE WORK DONE IN THE PROTECTED ZONE SUBSEQUENT TO THE REMOVAL OF THE BARRIERS SHALL BE ACCOMPLISHED WITH LIGHT MACHINERY OR HAND LABOR.

IN ADDITION TO THE ABOVE, THE ENGINEER MAY REQUIRE THE FOLLOWING:

COVER WITH MULCH TO A DEPTH OF AT LEAST 6 INCHES OR WITH PLYWOOD OR SIMILAR MATERIAL THE AREAS ADJOINING THE CRITICAL ROOT ZONE OF A TREE IN ORDER TO PROTECT ROOTS FROM DAMAGE CAUSED BY HEAVY EQUIPMENT.

MINIMIZE ROOT DAMAGE BY EXCAVATING A 2 FOOT DEEP TRENCH, AT EDGE OF CRITICAL ROOT ZONE, TO CLEANLY SEVERE THE ROOTS OF TREES TO BE RETAINED.

HAVE CORRECTIVE PRUNING PERFORMED ON PROTECTED TREES IN ORDER TO AVOID DAMAGE FROM MACHINERY OR BUILDING ACTIVITY.

MAINTAIN TREES THROUGHOUT CONSTRUCTION PERIOD BY WATERING.

GRADE:
THE GRADE SHALL NOT BE ELEVATED OR REDUCED WITHIN THE CRITICAL ROOT ZONE OF TREES TO BE PRESERVED WITHOUT THE ENGINEER'S AUTHORIZATION. THE ENGINEER MAY ALLOW COVERAGE OF UP TO ONE HALF OF THE AREA OF THE TREE'S CRITICAL ROOT ZONE WITH LIGHT SOILS (NO CLAY) TO THE MINIMUM DEPTH NECESSARY TO CARRY OUT GRADING OR PLANTING PLANS, IF IT WILL NOT IMPERIL THE SURVIVAL OF THE TREE. AERATION DEVICES MAY BE REQUIRED TO ENSURE THE TREE'S SURVIVAL.

IF THE GRADE ADJACENT TO A PRESERVED TREE IS RAISED SUCH THAT IT COULD SLOUGH OR ERODE INTO THE TREE'S CRITICAL ROOT ZONE, IT SHALL BE PERMANENTLY STABILIZED TO PREVENT SUFFOCATION OF THE ROOTS.

TREES AND OTHER VEGETATION TO BE RETAINED SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. CLEARING OPERATION SHALL BE CONDUCTED SO AS TO EXPOSE THE SMALLEST PRACTICAL AREA OF SOIL TO EROSION FOR THE LEAST POSSIBLE TIME. TO CONTROL EROSION, SHRUBS, GROUNDCOVERS AND STUMPS SHALL BE MAINTAINED ON THE INDIVIDUAL LOTS, WHERE FEASIBLE.

PLANT LIST

SYM	QTY	NAME	CONTAINER	SPACING	COMMENTS
TREES					
TAM	4	Acer macrophyllum Bigleaf Maple	36" Min. Bare Root	As Shown	Apply 3" depth of compost and bark mulch in 4' diameter ring following WSDOT Standard Plan H-10.10-100
TTP	9	Thuja plicata Western Red Cedar	5 Gallon	As Shown	Apply 3" depth of compost and bark mulch in 4' diameter ring following WSDOT Standard Plan H-10.10-100
TFA	3	Fraxinus latifolia Oregon Ash	36" Min. Bare Root	As Shown	Apply 3" depth of compost and bark mulch in 4' diameter ring following WSDOT Standard Plan H-10.10-100
STAKES					
SSG	21	Salix geyeriana Geyer Willow	36" Min. Length, 1"-2" Diam.	As Shown	
SCA	19	Cornus Alba Redosier Dogwood	Live Stake	As Shown	
ZONE B - DISTURBED AREA ABOVE ORDINARY HIGH WATER					
	1,960 SF	38.5% - *Hordeum brachyantherum* (Meadow Barley) 20% - *Bromus carinatus* (California Brome) 12% - *Festuca rubra rubra* (Native Red Fescue) 10% - *Glyceria occidentallis* (Northwestern Mannagrass) 5% - *Rosa nutkana* (Nootka Rose) 5% - *Symphoricarpos alba* (Common Snowberry) 4.5% - *Mahonia aquifolium* (Oregon Grape) 3% - *Deschampsia cespitosa* (Tufted Hairgrass) 1.5% - *Agrostis exarata* (Spike Bentgrass) 0.5% - *Holodiscus discolor* (Oceanspray)	Seed Mix	1 lbs / 1,000 SF	Place jute erosion control mat, then hydroseed the bank to ensure establishment of seed mix and erosion control. See details, sheet L03. Seed application prior to jute matting to increase seed to soil contact. Provide mix as specified, or approved equal.
ZONE C - DISTURBED AREA FROM GRADING AND CONSTRUCTION ACTIVITIES					
	33,925 SF	43% - Elymus glaucus (Blue Wildrye) 37% - *Hordeum brachyantherum* (Meadow Barley) 11% - *Lolium multiflorum* (Annual Ryegrass) 7% - *Festuca idahoensis* (Idaho Fescue) 1% - *Festuca ovina* (Sheep Fescue) 0.6% - *Deschampsia* elongata (Slender Hairgrass) 0.4% - *Koeleria macrantha* (Junegrass)	Seed Mix	1 lbs / 1,000 SF	For slopes between 2:1 and 3:1, place jute erosion control mat, then hydroseed to ensure establishment of seed mix and erosion control. For slopes less than 3:1, do not place jute erosion control matt after seeding. See details, sheet L03. Seed application prior to jute matting to increased seed to soil contact. Provide mix as specified, or approved equal.

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PLANTING MITIGATION NOTES
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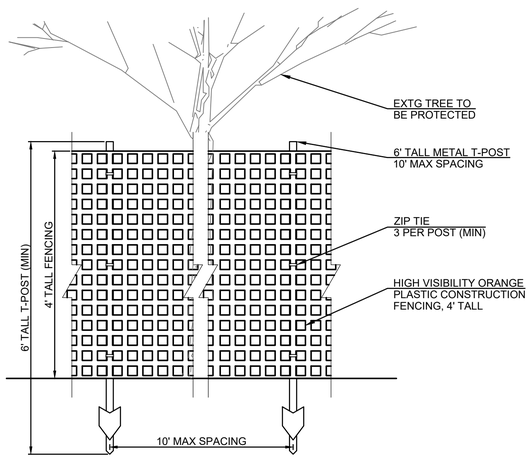

1 Tree Protection Fencing

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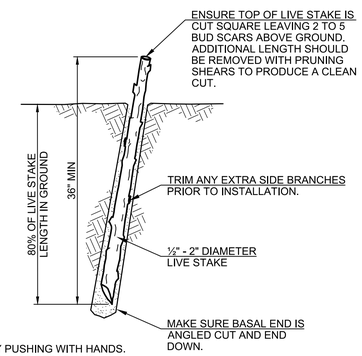
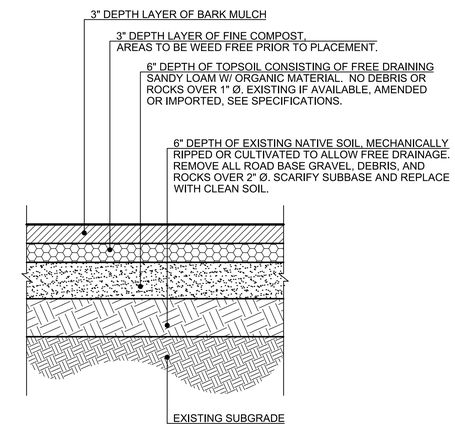


NOTE:
INSTALL LIVE STAKES BY PUSHING WITH HANDS.
IF GROUND IS TOO SOLID, USE REBAR AND
SLEDGE HAMMER TO MAKE HOLE PRIOR TO LIVE
STAKE INSTALLATION. DO NOT HAMMER
DIRECTLY ON STAKE.

2 Live Stake Detail

NOT TO SCALE



3 Upland Restoration Soil Cross Section

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