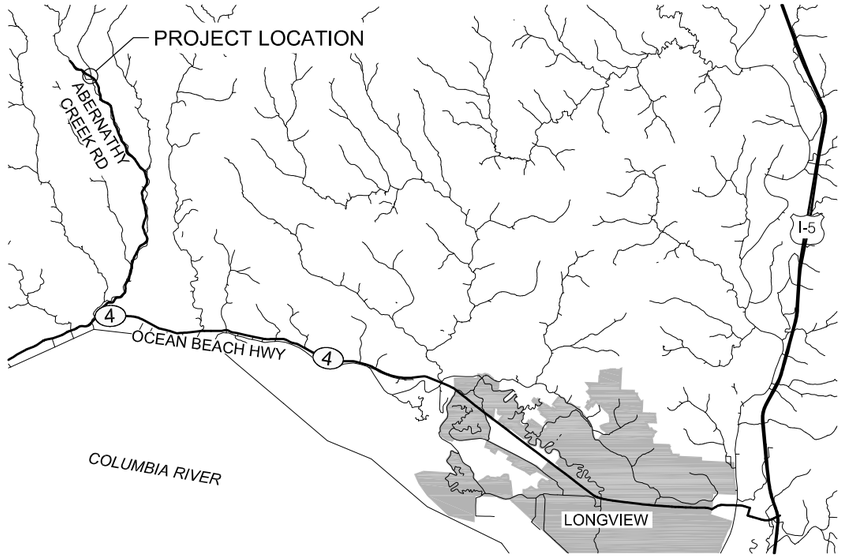
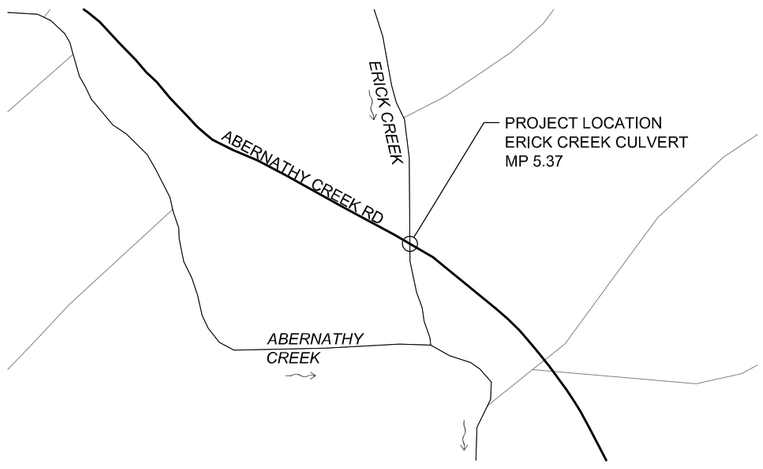
FINAL DESIGN
9-30-16
NOT FOR CONSTRUCTION

ERICK CREEK FISH PASSAGE CULVERT PROJECT

COWLITZ COUNTY, WASHINGTON



VICINITY MAP
1" = 7500' (FOR 22" x 34" SHEETS)



PROJECT LOCATION MAP
1" = 200' (FOR 22" X 34" SHEETS)

DRAWING INDEX

G1.0 COVER
G2.0 GENERAL NOTES AND LEGEND

G3.1 PHASE 1 CONSTRUCTION PLAN
G3.2 PHASE 2 CONSTRUCTION PLAN

G4.0 TRAFFIC CONTROL PLAN

C1.0 EXISTING CONDITIONS AND DEMO PLAN

C2.0 CULVERT PLAN AND PROFILE
C2.1 CULVERT SECTIONS 1
C2.2 CULVERT SECTIONS 2
C2.3 CULVERT DETAILS

C3.0 FOUNDATION NOTES
C3.1 FOUNDATION SECTIONS AND DETAILS

C4.0 ROADWAY TYPICAL SECTION
C4.1 ROADWAY PLAN AND PROFILE

EC1.0 EROSION CONTROL PLAN
EC2.1 EROSION CONTROL DETAILS 1
EC2.2 EROSION CONTROL DETAILS 2

CONTACT INFORMATION

ESA (503) 274 - 2010
MAURIA PAPPAGALLO, PE
ADAM ZUCKER, PE

COWLITZ INDIAN TRIBE (360) 353 - 9425
1055 9TH AVENUE SUITE B
LONGVIEW, WA 98632
ELI ASHER

STATEWIDE LAND SURVEYING (503) 665 - 7777
43 NW AVA AVENUE
GRESHAM, OR 97030
GREG ENGELGAU

ABBREVIATIONS

AC	ASPHALT CONCRETE	FT	FOOT, FEET	OHW	ORDINARY HIGH WATER
APPROX	APPROXIMATELY	H(ORZ)	HORIZONTAL	PC	POINT OF CURVATURE
AVG	AVERAGE	HMA	HOT MIX ASPHALT	PCF	POUNDS PER CUBIC FOOT
BOT	BOTTOM	HWY	HIGHWAY	PG	PERFORMANCE GRADE
BVCE	BEGINNING VERTICAL CURVE ELEVATION	IE	INVERT ELEVATION	PI	POINT OF INTEREST
BVCS	BEGINNING VERTICAL CURVE STATION	IN	INCH	PSI	POUNDS PER SQUARE INCH
CL	CENTER LINE	INCL	INCLUDE	PT	POINT
CMP	CORRUGATED METAL PIPE	K	KIP	PVI	POINT OF VERTICAL INTERSECT
CP	CONTROL POINT	LB(S)	POUND	RD	ROAD
CPE	CORRUGATED POLYETHYLENE PIPE	LF	LINEAR FOOT	REF	REFERENCE
CULV	CULVERT	LT	LEFT	ROW	RIGHT-OF-WAY
CY	CUBIC YARD	MAX	MAXIMUM	RT	RIGHT
DIA(M)	DIAMETER	MGMT	MANAGEMENT	S	SLOPE
DIR	DIRECTION	MIN	MINIMUM	SD	STORM DRAIN
DTL	DETAIL	MP	MILE POST	SE	SOUTHEAST
D/S	DOWNSTREAM	MPH	MILES PER HOUR	SHT	SHEET
DWG	DRAWING	N	NORTHING	SPEC	SPECIFICATION
E	EASTING	N-S	NORTH TO SOUTH	STA	STATION
EC	EROSION CONTROL	NAD83	NORTH AMERICAN DATUM OF 1983	STD	STANDARD
EG	EXISTING GRADE	NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988	SW	SOUTHWEST
EL(EV)	ELEVATION	NE	NORTHEAST	TBD	TO BE DEVELOPED
EVCE	END VERTICAL CURVE ELEVATION	NIC	NOT IN CONTRACT	TYP	TYPICAL
EVCS	END VERTICAL CURVE STATION	NO	NUMBER	U/S	UPSTREAM
EX(IST)	EXISTING	NTS	NOT TO SCALE	V(ERT)	VERTICAL
FG	FUTURE GRADE	NW	NORTHWEST	VC	VERTICAL CURVE
FY	YIELD STRENGTH	OC	ON CENTER	W/	WITH
				WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

GENERAL NOTES:

1. IN-WATER WORK WINDOW: JULY 16 - SEPTEMBER 15. IN WATER WORK OUTSIDE OF THIS TIME FRAME SHALL BE IN ACCORDANCE WITH ALL PERMIT CONDITIONS.
2. HORIZONTAL DATUM: STATE PLANE COORDINATES, WASHINGTON SOUTH ZONE, NAD83, INTERNATIONAL FEET
   VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
3. SITE TOPOGRAPHY BASED ON JUNE 2016 SURVEY CONDUCTED BY STATEWIDE LAND SURVEYING.
4. CONTRACTOR IS RESPONSIBLE FOR MEETING ALL STATE & COUNTY TRAFFIC SIGNAGE AND/OR FLAGGING REQUIREMENTS.
5. CONTRACTOR IS RESPONSIBLE FOR MEETING ALL PERMIT REQUIREMENTS. ANY FINES INCURRED DUE TO PERMIT VIOLATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND OBSERVING SITE CONDITION IN ALL WORK AREAS PRIOR TO BIDDING.
7. ALL QUANTITY ESTIMATES ARE APPROXIMATE.
8. PLAN SET IS NOT FOR CONSTRUCTION AS PERMITS AND RIGHT-OF-WAY TEMPORARY CONSTRUCTION EASEMENTS ARE STILL IN PROCESS.

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

GENERAL NOTES

1. ATTENTION: WASHINGTON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE NORTHWEST UTILITY NOTIFICATION CENTER. YOU MAY OBTAIN COPIES OF THESE RULES BY CALLING THE CENTER. THE CENTER BUSINESS NUMBER IS 1-800-424-5555.
2. ALL EXISTING UTILITY LOCATIONS AND DESCRIPTIONS SHOWN ON PLANS HAVE BEEN COMPILED FROM AVAILABLE RECORDS AND/OR FIELD SURVEY. THE COWLITZ TRIBE CANNOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF LOCATION AND DEPTH (POTHOLE) OF ALL EXISTING UTILITIES WITHIN THE CONSTRUCTION ZONE PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROMPTLY NOTIFY THE COWLITZ TRIBE OF POTENTIAL CONFLICTS. UNDER THESE TERMS THE COWLITZ TRIBE SHALL BE RESPONSIBLE FOR COST OF REQUIRED RELOCATIONS. IF CONTRACTOR FAILS TO LOCATE ANY KNOWN UTILITY WITHIN THE CONSTRUCTION ZONE THAT CONFLICTS WITH WORK, CONTRACTOR SHALL CORRECT CONFLICT AT OWN COST. ANY COSTS TO THE CONTRACTOR ARISING FROM COORDINATION WITH UTILITY COMPANY TO RELOCATE UTILITIES SHALL BE CONSIDERED INCIDENTAL TO COST OF THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE DUE TO CONTRACTOR.
3. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR HAVING UTILITIES LOCATED PRIOR TO CONSTRUCTION ACTIVITIES.
4. THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY DAMAGED UTILITIES TO THE AFFECTED UTILITY SERVICE.
5. CONTRACTOR TO FOLLOW DEWATERING PROCEDURES OUTLINED IN THE WORK AREA ISOLATION PLAN AND STRUCTURE SPECIAL PROVISIONS. THE CONTRACTOR SHALL INSTALL A WORK AREA ISOLATION SYSTEM ANY TIME WORK IS OCCURRING WITHIN ERICK CREEK. THE IN-WATER WORK ISOLATION PLAN SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO CONSTRUCTION, PER SPECIFICATIONS.
6. ALL WORK BELOW THE ORDINARY HIGH WATER ELEVATION SHALL BE DONE DURING THE IN-WATER WORK PERIOD OF JULY 15TH TO SEPTEMBER 15TH.
7. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE COWLITZ COUNTY CODE (CCC), COWLITZ COUNTY ROAD STANDARDS (CCRS), COUNTY, STATE AND FEDERAL PERMITS, AND PROJECT SPECIFICATIONS.
8. A PRECONSTRUCTION MEETING MUST BE HELD WITH THE COWLITZ TRIBE BEFORE ANY CONSTRUCTION ACTIVITIES CAN TAKE PLACE.
9. A COPY OF THESE APPROVED PLANS AND ALL APPLICABLE PERMITS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
10. CONSTRUCTION NOISE SHALL BE MANAGED IN ACCORDANCE WITH THE NUISANCE ORDINANCE CCC10.25.
11. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. SECTION 1-07.23, "TRAFFIC CONTROL" OF THE WSDOT STANDARD SPECIFICATIONS, SHALL APPLY IN ITS ENTIRETY. SUBMIT TRAFFIC CONTROL PLANS AS REQUIRED IN THE SPECIFICATIONS TO COWLITZ TRIBE FOR APPROVAL AND INDICATE TRAFFIC IMPACTS ON THE CONSTRUCTION SCHEDULE.
12. SUBMITTALS FOR STRUCTURE EXCAVATION SHALL BE SUBMITTED AT THE SAME TIME AS THE TRAFFIC CONTROL PLAN.
13. IF ANY CULTURAL RESOURCES AND/OR HUMAN REMAINS ARE DISCOVERED IN THE COURSE OF UNDERTAKING THE CONSTRUCTION ACTIVITY, THE STATE DEPARTMENT OF ARCHAEOLOGY AND HISTORIC PRESERVATION IN OLYMPIA AND COWLITZ TRIBE SHALL BE NOTIFIED. FAILURE TO COMPLY WITH THESE STATE REQUIREMENTS MAY CONSTITUTE A CLASS C FELONY, SUBJECT TO IMPRISONMENT AND/OR FINES.
14. ALL EXCESS MATERIAL SHALL BE REMOVED FROM THE CHANNEL AND CULVERT SITE UPON COMPLETION OF THE PROJECT.
15. CONTRACTOR SHALL CONFINE CONSTRUCTION OPERATIONS TO WITHIN PERMANENT EASEMENTS, TEMPORARY CONSTRUCTION EASEMENTS, OR PUBLIC RIGHT -OF-WAY ONLY. IF AREAS OR FEATURES OUTSIDE DESIGNATED CONSTRUCTION ZONES SUSTAIN IMPACT FROM CONTRACTORS ACTIVITIES, CONTRACTOR SHALL RESTORE TO PRE-CONSTRUCTION CONDITION AT NO COST TO THE COWLITZ TRIBE.

LEGEND

	EXISTING	NEW
ELECTRICAL JUNCTION	Ⓔ	
TELEPHONE BOX	TJ	
TELEPHONE PEDESTAL	Ⓣ	
MAILBOX		
TREE(S)		
TREE(S) TO BE REMOVED		
SEWER DRAIN		SD
MINOR CONTOUR (1')		
MAJOR CONTOUR (5')		
FENCE		
ELECTRICAL		
TELEPHONE		
CHANNEL THALWEG		
RIGHT OF WAY		
ORDINARY HIGH WATER	OHW	

ESA
819 SE Morrison St. Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURA J. PAPROCKI
STATE OF WASHINGTON
48803
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

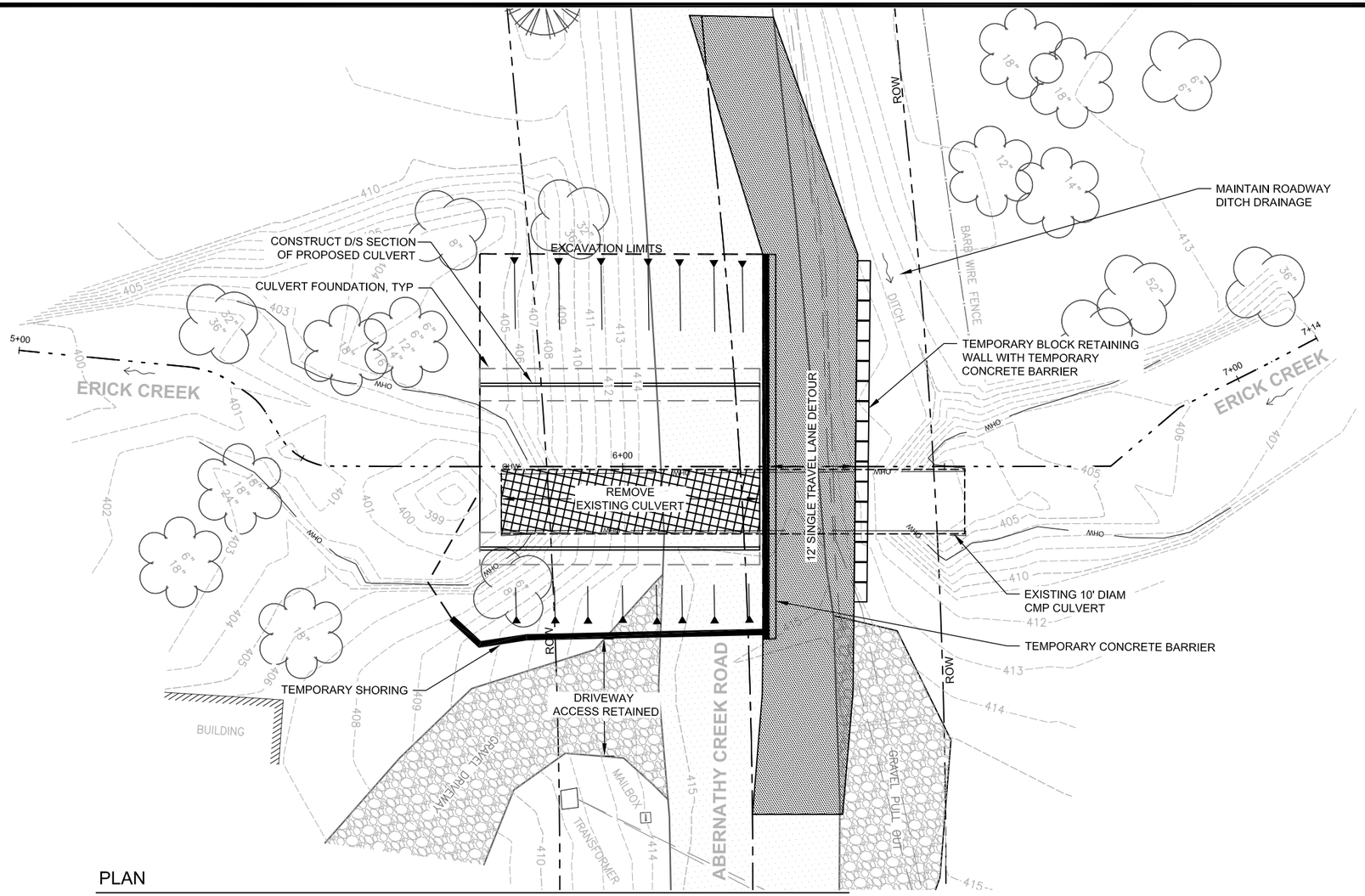
Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name
GENERAL NOTES AND LEGEND

Sheet No.
G2.0

Project No.:
D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\G2.0_General_Notes_and_Legend.dwg USER: mjp
DATE: Oct 14, 2016 6:13pm XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST+MJP_PE-WA

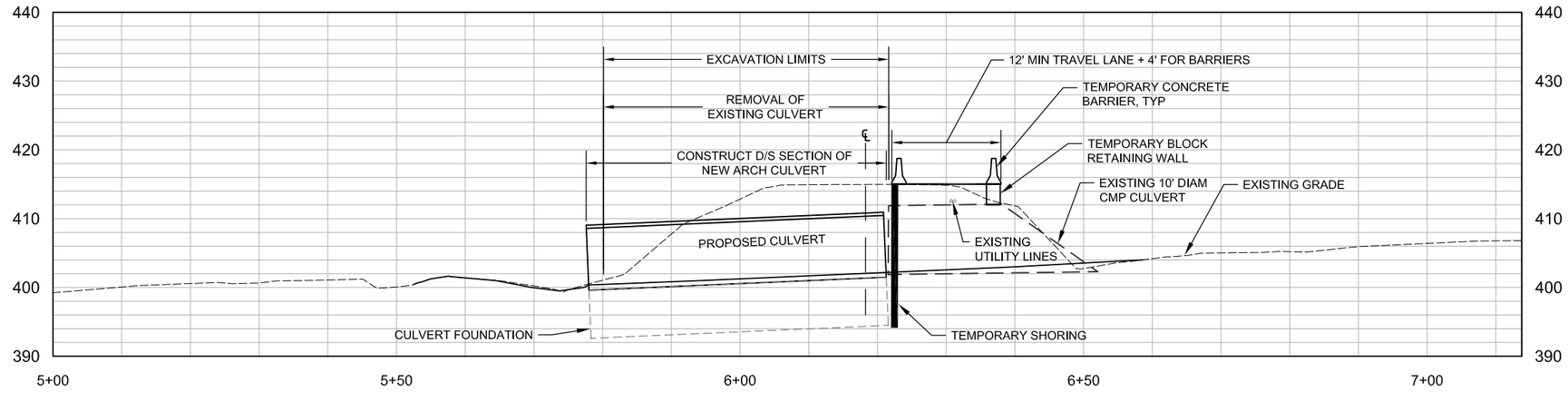


PLAN

NOTES:

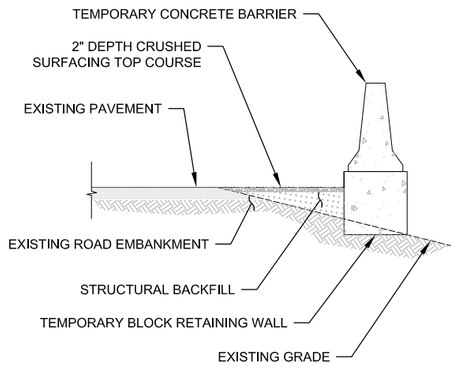
1. THE CONSTRUCTION PHASING DESCRIBED ON G3.1 AND G3.2 IS AN EXAMPLE CONSTRUCTION DETOUR AND PHASING. THE FINAL CONSTRUCTION PHASING PLAN TO BE DEVELOPED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER/OWNERS REPRESENTATIVE AS PART OF THE SUBMITTALS FOR STRUCTURE EXCAVATION (SPEC 2-09).
2. CUT SLOPES SHALL NOT BE STEEPER THAN 1.25 (H) : 1 (V), OTHERWISE TEMPORARY RETAINING WALLS OR SHORING SHALL BE USED.
3. THE GRADE OF THE TEMPORARY TRAVEL LANE MAY VARY FROM THE FINAL ROAD GRADE.

10 0 10 20
SCALE FEET



PROFILE

10 0 10 20
SCALE FEET



TYPICAL DETOUR SECTION

NOT TO SCALE

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PARCOGALLO
STATE OF WASHINGTON
49603
REGISTERED PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name

PHASE 1 CONSTRUCTION PLAN

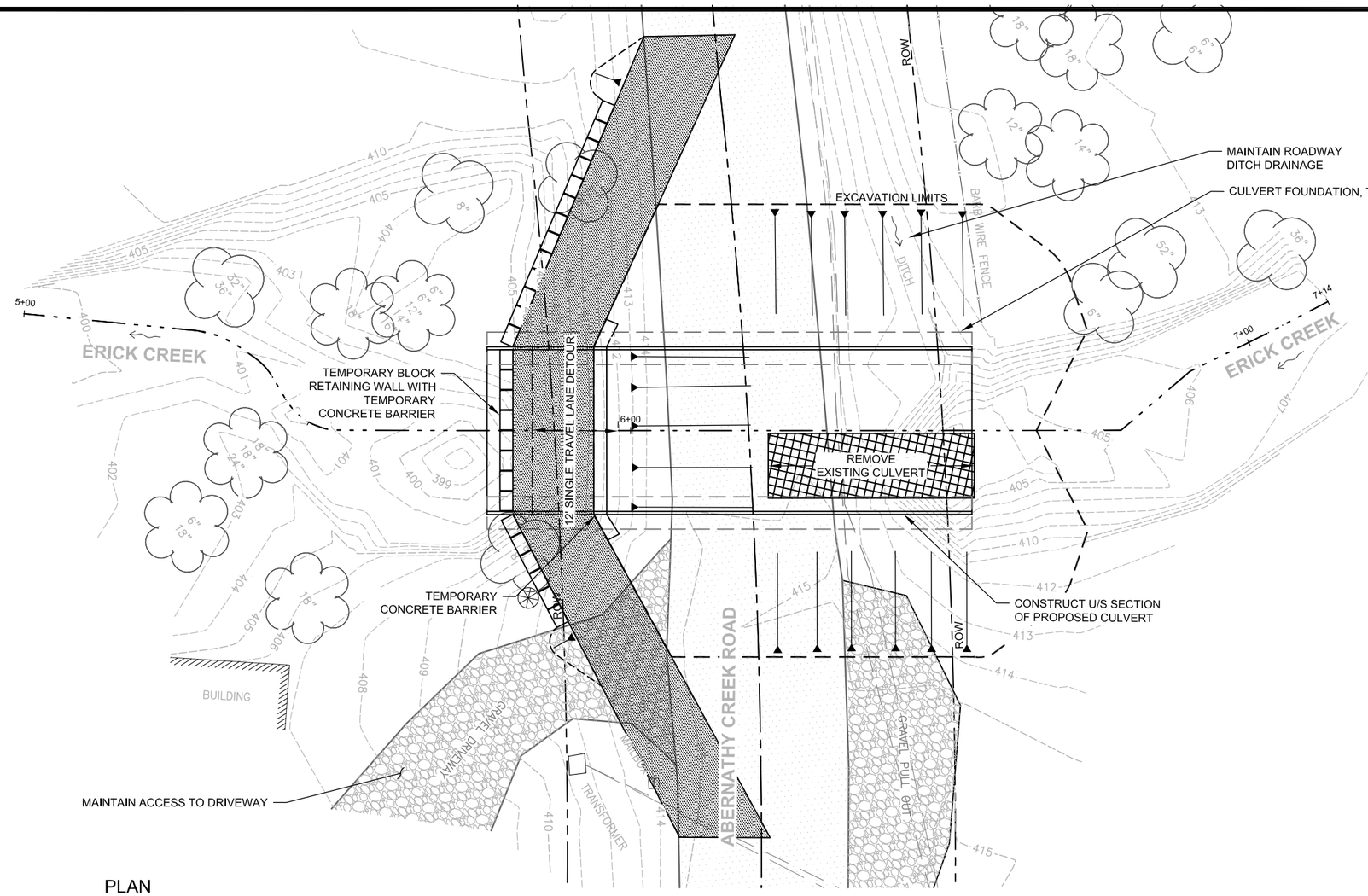
Sheet No.

G3.1

Project No.:

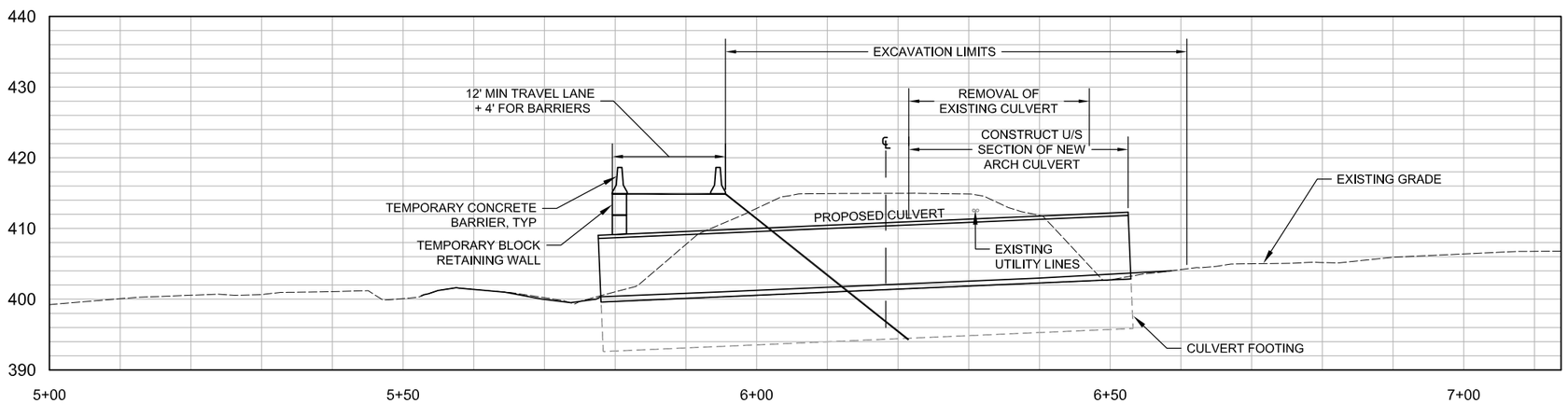
D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\G3.1_3.2_Construction_Plan.dwg USER: mjp
DATE: Oct 14, 2016 6:16pm XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST-MJP_PE-WA



PLAN

10 0 10 20
SCALE FEET



PROFILE

10 0 10 20
SCALE FEET

NOTES:

1. THE CONSTRUCTION PHASING DESCRIBED ON G3.1 AND G3.2 IS AN EXAMPLE CONSTRUCTION DETOUR AND PHASING. THE FINAL CONSTRUCTION PHASING PLAN TO BE DEVELOPED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER/OWNERS REPRESENTATIVE AS PART OF THE SUBMITTALS FOR STRUCTURE EXCAVATION (SPEC 2-09).
2. CUT SLOPES SHALL NOT BE STEEPER THAN 1.25 (H) : 1 (V), OTHERWISE TEMPORARY RETAINING WALLS OR SHORING SHALL BE USED.
3. THE GRADE OF THE TEMPORARY TRAVEL LANE MAY VARY FROM THE FINAL ROAD GRADE.

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURA J. PAPROCKI — STATE OF OREGON — 67 — 46803 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name
PHASE 2 CONSTRUCTION PLAN

Sheet No.
G3.2

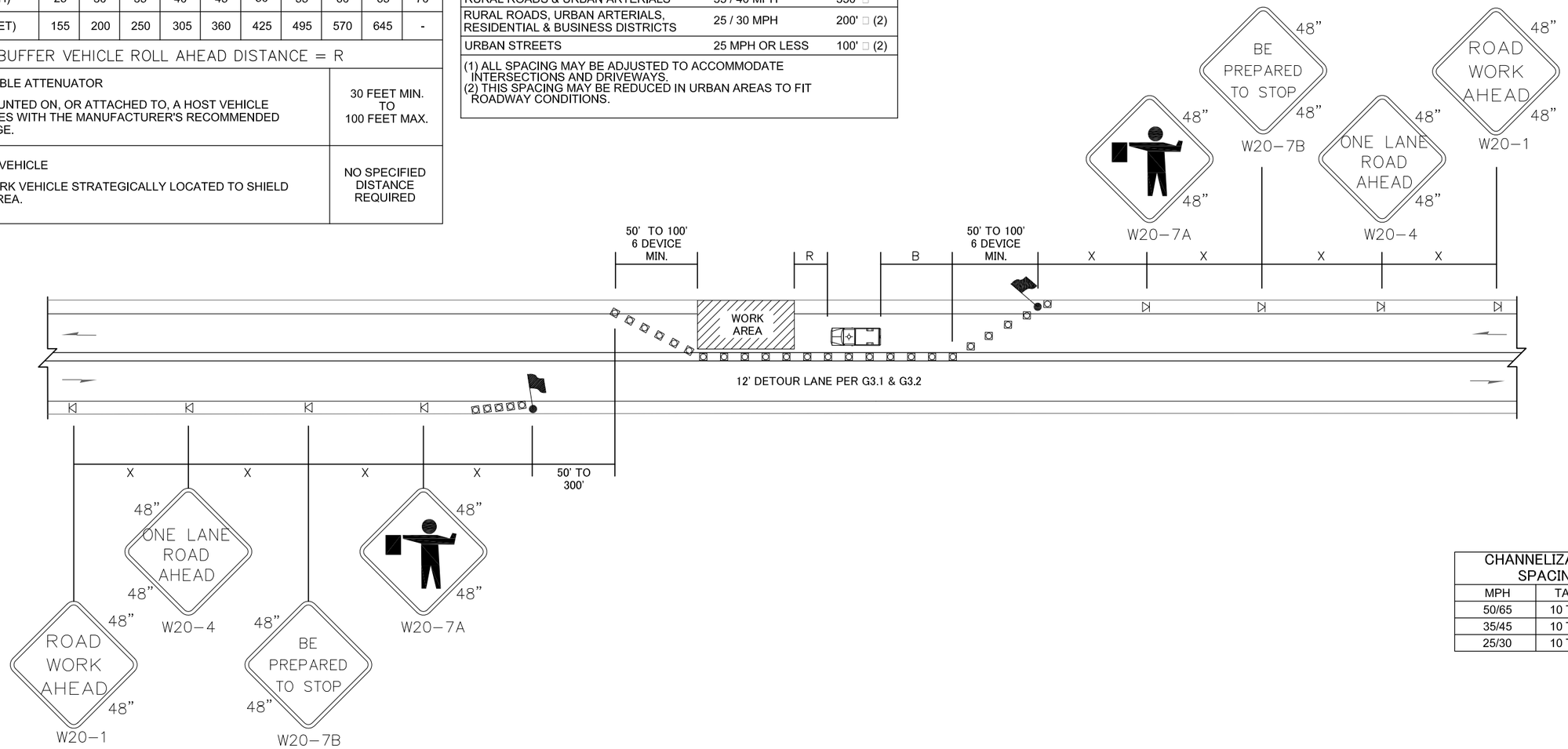
Project No.:
D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOTIG3.1_3.2_Construction_Plan.dwg USER: mjp
DATE: Oct 14, 2016 6:18pm XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST-MJP_PE-WA

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (FEET)	155	200	250	305	360	425	495	570	645	-
BUFFER VEHICLE ROLL AHEAD DISTANCE = R										
TRANSPORTABLE ATTENUATOR SHALL BE MOUNTED ON, OR ATTACHED TO, A HOST VEHICLE THAT COMPLIES WITH THE MANUFACTURER'S RECOMMENDED WEIGHT RANGE.										30 FEET MIN. TO 100 FEET MAX.
PROTECTIVE VEHICLE MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.										NO SPECIFIED DISTANCE REQUIRED

SIGN SPACING = X (1)		
RURAL HIGHWAYS	60 / 65 MPH	800' □
RURAL ROADS	45 / 55 MPH	500' □
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350' □
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200' □ (2)
URBAN STREETS	25 MPH OR LESS	100' □ (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.



CHANNELIZATION DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50/65	10 TO 20	80
35/45	10 TO 20	60
25/30	10 TO 20	40

LEGEND

- FLAGGING STATION
- TEMPORARY SIGN LOCATION
- CHANNELIZING DEVICES
- PROTECTIVE VEHICLE

ONE-LANE, TWO-WAY TRAFFIC CONTROL WITH FLAGGERS

NOT TO SCALE

NOTES:

1. ALL SIGNS ARE BLACK ON ORANGE.
2. EXTENDING THE CHANNELIZING DEVICE TAPER ACROSS SHOULDER IS RECOMMENDED.
3. NIGHT WORK REQUIRES ADDITIONAL ROADWAY LIGHTING AT FLAGGING STATIONS. SEE THE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.
4. SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PAPOGALLO
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

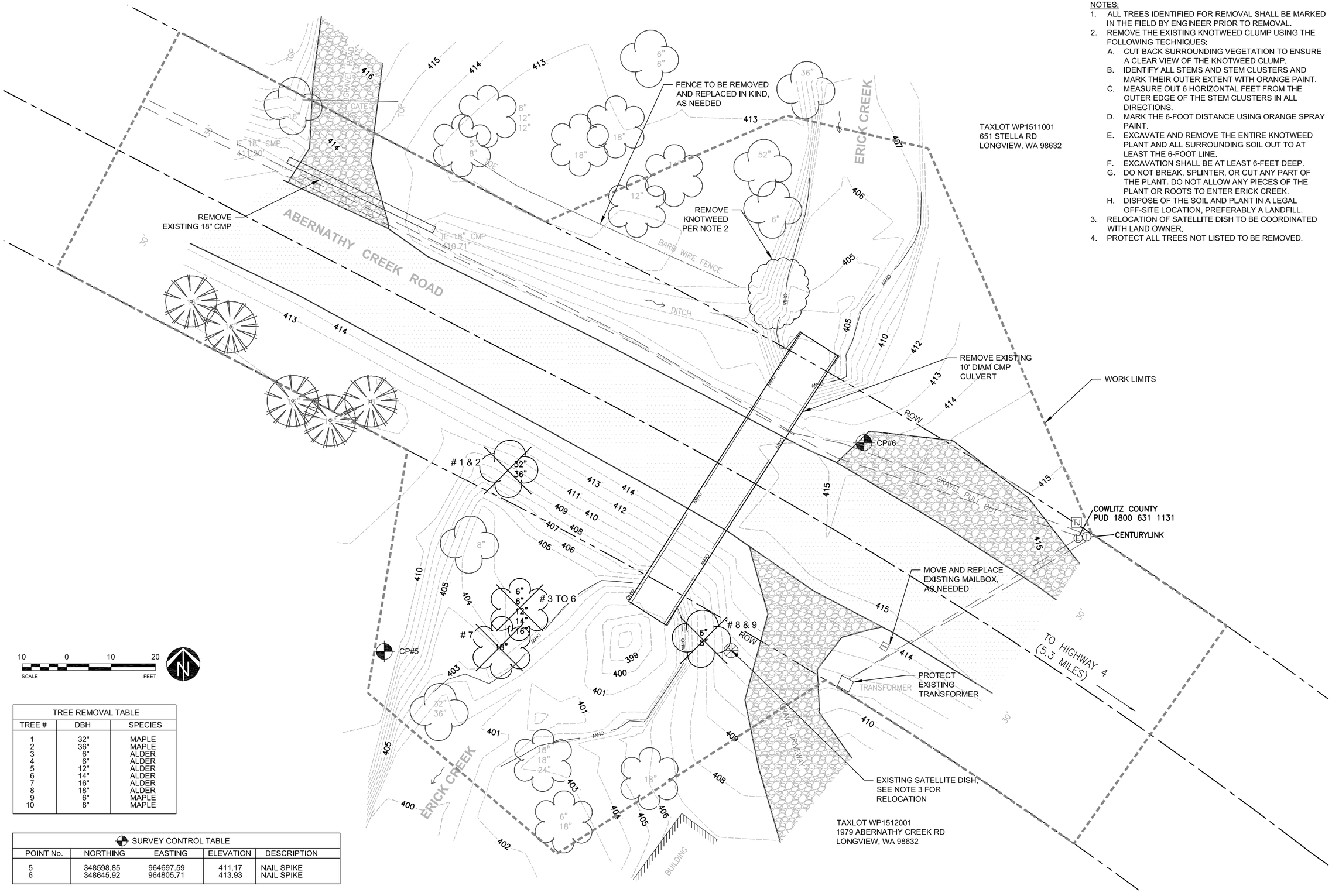
Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name: TRAFFIC CONTROL PLAN

Sheet No.: G4.0

Project No.: D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\G4.0_Traffic_Control_Plan.dwg USER: mjp
DATE: Oct 14, 2016 6:26pm XREFS:Erick_Creek_TITL_22x34 ST-MJP_PE-WA



NOTES:

1. ALL TREES IDENTIFIED FOR REMOVAL SHALL BE MARKED IN THE FIELD BY ENGINEER PRIOR TO REMOVAL.
2. REMOVE THE EXISTING KNOTWEED CLUMP USING THE FOLLOWING TECHNIQUES:
   A. CUT BACK SURROUNDING VEGETATION TO ENSURE A CLEAR VIEW OF THE KNOTWEED CLUMP.
   B. IDENTIFY ALL STEMS AND STEM CLUSTERS AND MARK THEIR OUTER EXTENT WITH ORANGE PAINT.
   C. MEASURE OUT 6 HORIZONTAL FEET FROM THE OUTER EDGE OF THE STEM CLUSTERS IN ALL DIRECTIONS.
   D. MARK THE 6-FOOT DISTANCE USING ORANGE SPRAY PAINT.
   E. EXCAVATE AND REMOVE THE ENTIRE KNOTWEED PLANT AND ALL SURROUNDING SOIL OUT TO AT LEAST THE 6-FOOT LINE.
   F. EXCAVATION SHALL BE AT LEAST 6-FEET DEEP.
   G. DO NOT BREAK, SPLINTER, OR CUT ANY PART OF THE PLANT. DO NOT ALLOW ANY PIECES OF THE PLANT OR ROOTS TO ENTER ERICK CREEK.
   H. DISPOSE OF THE SOIL AND PLANT IN A LEGAL OFF-SITE LOCATION, PREFERABLY A LANDFILL.
3. RELOCATION OF SATELLITE DISH TO BE COORDINATED WITH LAND OWNER.
4. PROTECT ALL TREES NOT LISTED TO BE REMOVED.

TREE REMOVAL TABLE

TREE #	DBH	SPECIES
1	32"	MAPLE
2	36"	MAPLE
3	6"	ALDER
4	6"	ALDER
5	12"	ALDER
6	14"	ALDER
7	16"	ALDER
8	18"	ALDER
9	6"	MAPLE
10	8"	MAPLE

SURVEY CONTROL TABLE

POINT No.	NORTHING	EASTING	ELEVATION	DESCRIPTION
5	348598.85	964697.59	411.17	NAIL SPIKE
6	348645.92	964805.71	413.93	NAIL SPIKE

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PAPOGALLO
STATE OF WASHINGTON
49603
REGISTERED PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name

EXISTING CONDITIONS & DEMO PLAN

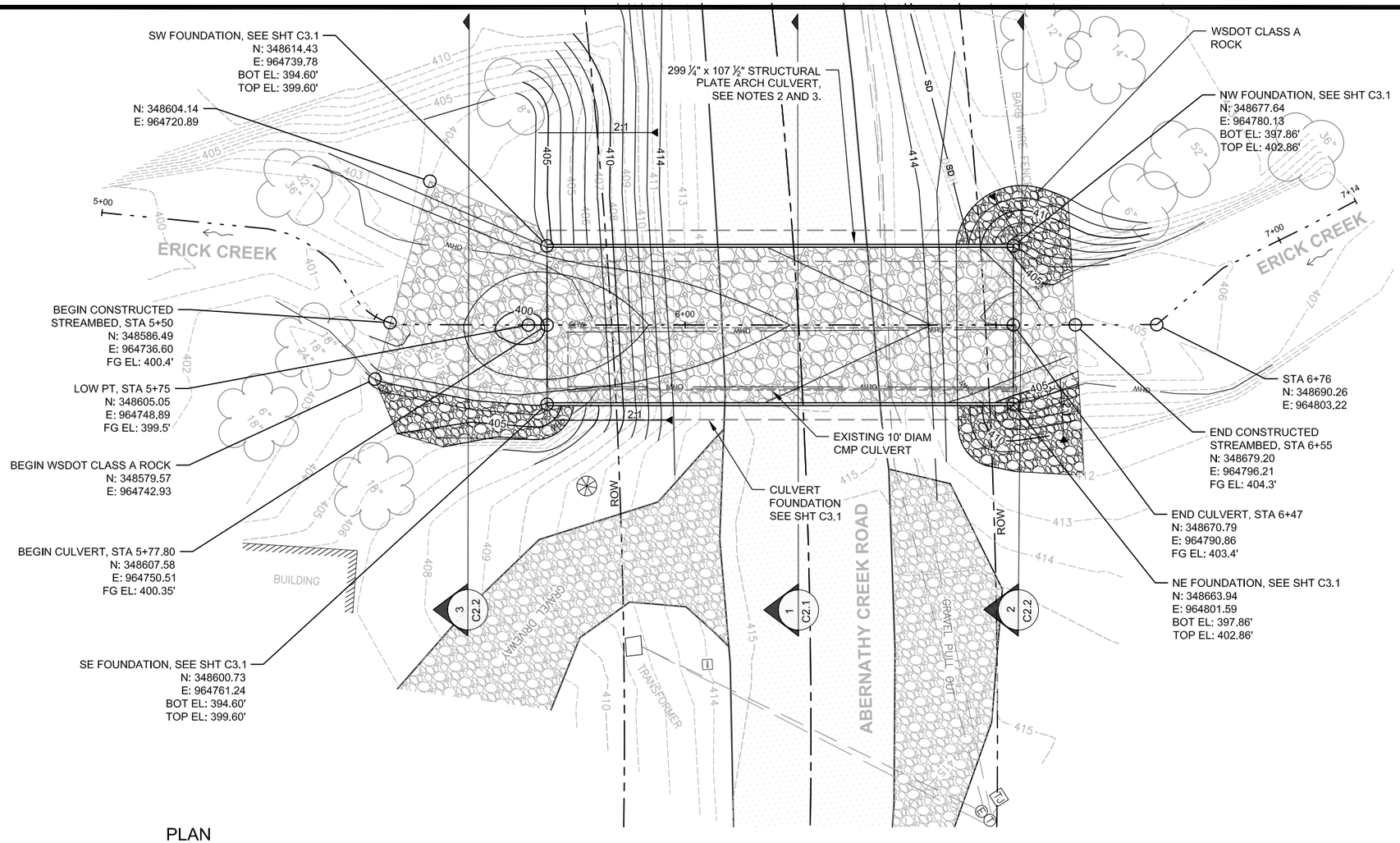
Sheet No.

C1.0

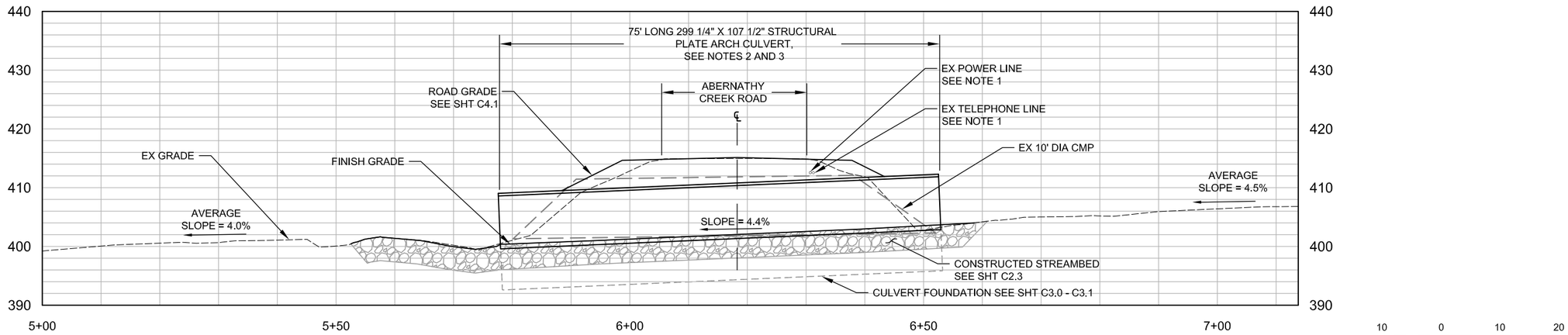
Project No.:

D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\C1.0_Existing_Conditions_and_Demo.dwg USER: mjp
DATE: Oct 14, 2016 6:32pm XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST-MJP_PE-WA



PLAN



PROFILE

NOTES:

1. CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS A MINIMUM OF 2 WEEKS PRIOR TO CONSTRUCTION TO COORDINATE UTILITY RELOCATIONS.
2. CONTRACTOR TO CONSTRUCT STREAMBED CHANNEL WITHIN CULVERT PER SHEETS C2.1 AND C2.2.
3. REFER TO SHEET EC SHEETS FOR WORK AREA ISOLATION PLAN AND DETAILS.
4. REFER TO SHEETS G3.1 AND G3.2 FOR CONSTRUCTION PHASING.
5. SEE CULVERT INLET AND OUTLET ELEVATION DETAILS SHEET C2.1.

LEGEND

- CONSTRUCTED STREAMBED
- WSDOT CLASS A ROCK
- EXISTING GRAVEL

10 0 10 20
SCALE FEET

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PARCAGALLO
STATE OF WASHINGTON
49603
REGISTERED PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name

CULVERT PLAN AND PROFILE

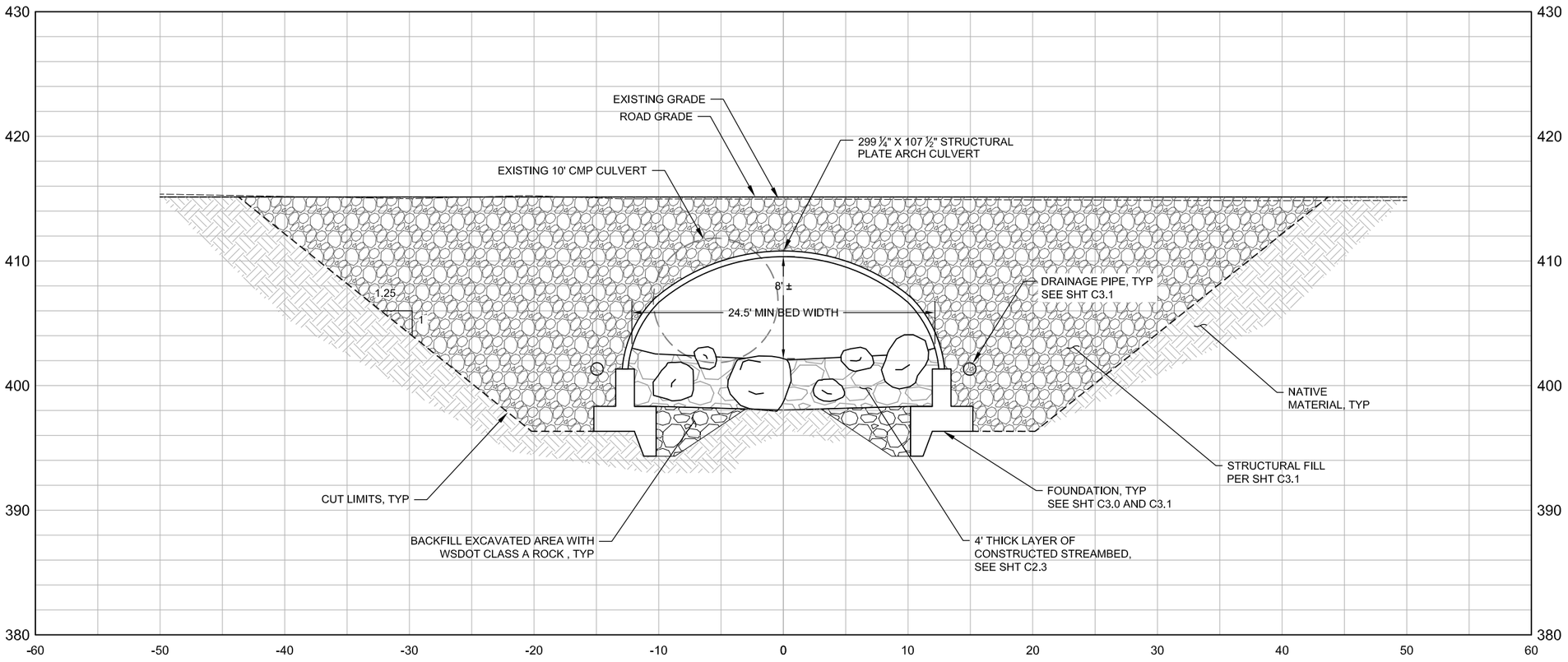
Sheet No.

C2.0

Project No.:

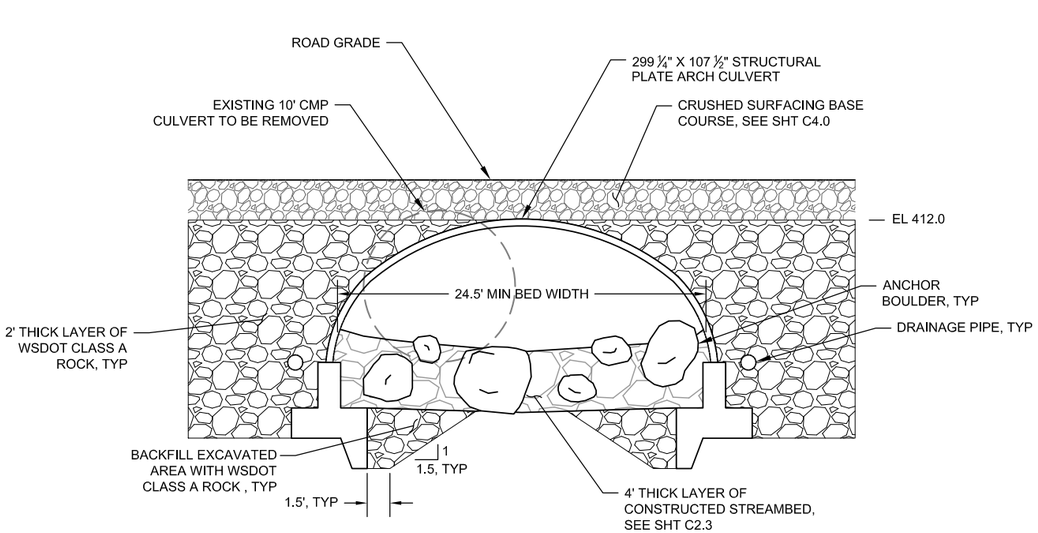
D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\C2.0_Culvert_Plan_and_Profile.dwg USER: mjp
DATE: Oct 14, 2016 6:33pm XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST-MJP_PE-WA



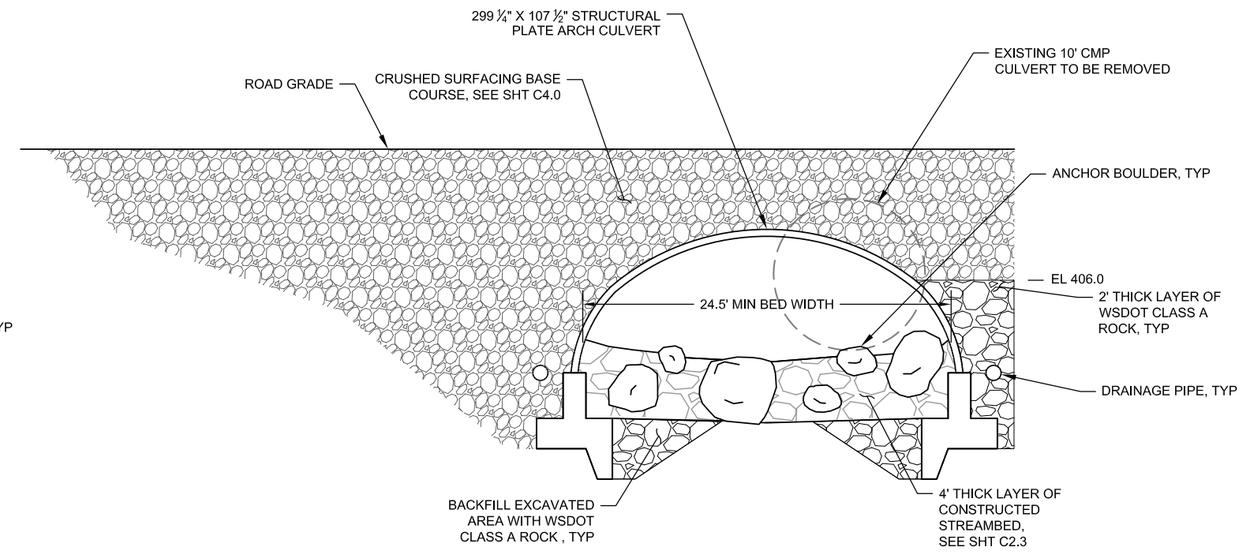
1 SECTION - ROAD CENTERLINE STA 1+95.53

HORIZ SCALE: 1" = 5' (FOR 22" X 34" SHEET)
VERT SCALE: 1" = 5' (FOR 22" X 34" SHEET)



2 ELEVATION CULVERT INLET STA 1+66.55

HORIZ SCALE: 1" = 5' (FOR 22" X 34" SHEET)
VERT SCALE: 1" = 5' (FOR 22" X 34" SHEET)



3 ELEVATION CULVERT OUTLET STA 2+28.96

HORIZ SCALE: 1" = 5' (FOR 22" X 34" SHEET)
VERT SCALE: 1" = 5' (FOR 22" X 34" SHEET)

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PATOCALLO
STATE OF WASHINGTON
49603
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

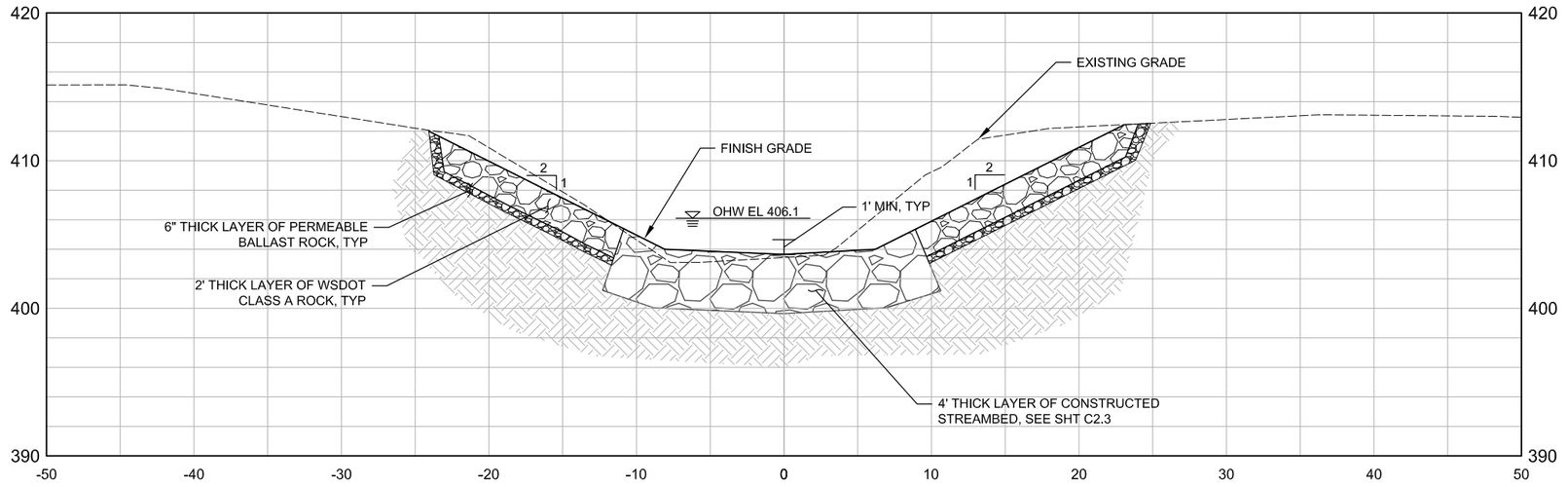
Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name
CULVERT SECTIONS 1

Sheet No.
C2.1

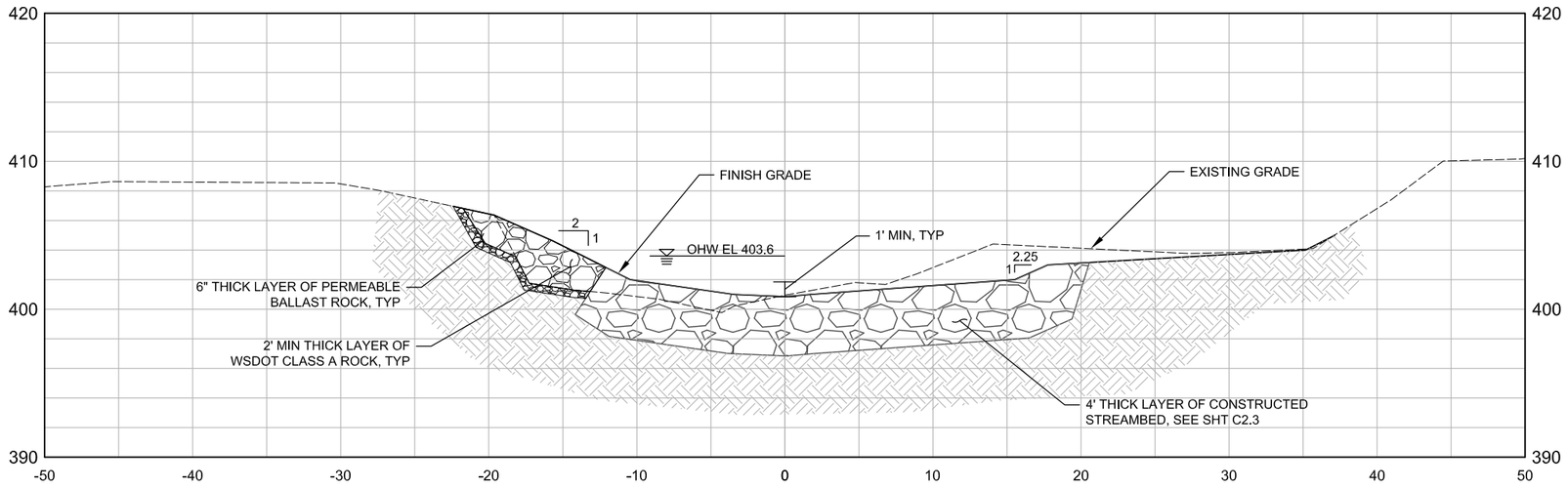
Project No.:
D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOTC2.1_Culvert_Sections_1.dwg USER: mjp
DATE: Oct 17, 2016 7:19am XREFS:ERick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST-MJP_PE-WA



2 SECTION - UPSTREAM OF INLET STA 6+54.00

HORIZ SCALE: 1" = 5' (FOR 22" X 34" SHEET)
VERT SCALE: 1" = 5' (FOR 22" X 34" SHEET)



3 SECTION - DOWNSTREAM OF OUTLET STA 5+65.17

HORIZ SCALE: 1" = 5' (FOR 22" X 34" SHEET)
VERT SCALE: 1" = 5' (FOR 22" X 34" SHEET)

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PAPOGALLO
STATE OF WASHINGTON
49603
REGISTERED PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name

CULVERT SECTIONS 2

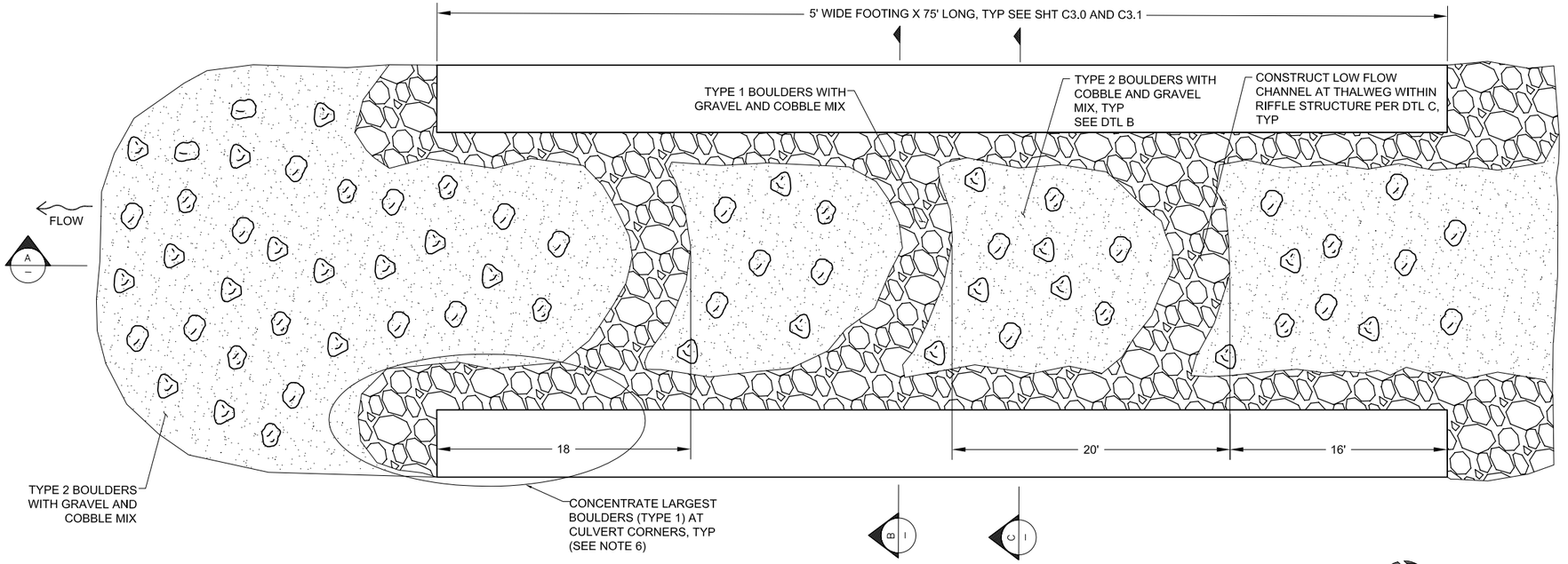
Sheet No.

C2.2

Project No.:

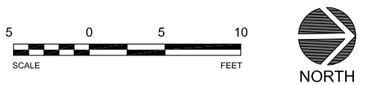
D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\C2.2_Culvert_Sections_2.dwg USER: mjp
DATE: Oct 17, 2016 7:27am XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST-MJP_PE-WA



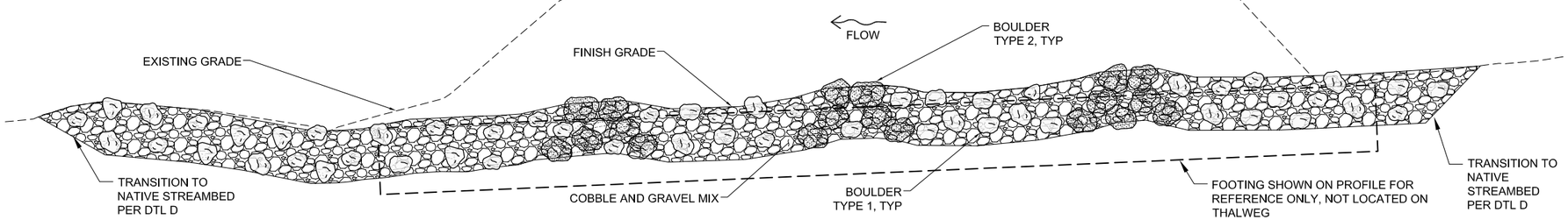
CONSTRUCTED STREAMBED PLAN

SCALE: 1" = 5' (FOR 22X34" SHEETS)



CONSTRUCTED STREAMBED NOTES:

1. THIS PROJECT WILL REQUIRE A 'FIELD DIRECTED' APPROACH TO STREAMBED CONSTRUCTION. CONTRACTOR REQUIRED TO COORDINATE WORK ACTIVITIES WITH OWNER'S REPRESENTATIVE.
2. CONSTRUCTED STREAMBED SHALL BE CONSTRUCTED WITH THE MATERIALS DESCRIBED IN THE TABLE BELOW. STONE FOR CONSTRUCTED STREAMBED SHALL BE PLACED TO MATCH THE DESIGN GRADE SHOWN.
3. PERFORM ALL SHAPING OF THE SUBGRADE TO THE ELEVATIONS, LINES AND GRADES, AS SHOWN. SHAPE, TRIM, AND FINISH SLOPES OF CHANNELS TO CONFORM WITH THE SUBGRADE LINES, GRADES, AND CROSS SECTIONS AS SHOWN. THE FINISHED SUBGRADE SHALL BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT OF ANY NEW MATERIAL.
4. PLACE STONE FOR CONSTRUCTED STREAMBED IN A MANNER THAT PREVENTS SEGREGATION OF STONE SIZES. STONE SHALL BE PLACED SUCH THAT THE CONSTRUCTED STREAMBED FORMS A CONSOLIDATED LAYER.
5. DO NOT ALLOW INTERSTITIAL FINES TO BUILD UP SUCH THAT ANY OF THE SUBSEQUENT LIFTS OF STREAMBED STONE WILL REST UPON INTERSTITIAL FINES.
6. PLACE TYPE 1 BOULDERS 4'-6' UP SIDE SLOPE AT UPSTREAM AND DOWNSTREAM END OF CULVERT TO PROTECT AGAINST EROSION. PLACE BOULDERS AS DIRECTED BY ENGINEER. MINIMUM 2 FT THICKNESS OF BOULDER SLOPE PROTECTION REQUIRED.
7. CONSTRUCT THREE RIFFLES AT APPROXIMATELY THE LOCATIONS SHOWN ON THE PLANS.
8. SEE CONSTRUCTED STREAMBED SPECIFICATION FOR ADDITIONAL REQUIREMENTS.



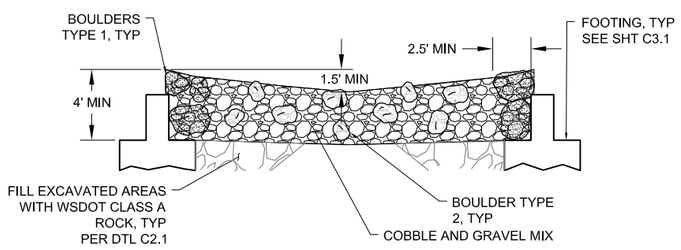
A PROFILE AT CULVERT CENTERLINE

SCALE: 1" = 5' (FOR 22X34" SHEETS)

CONSTRUCTED STREAMBED MATERIAL TABLE

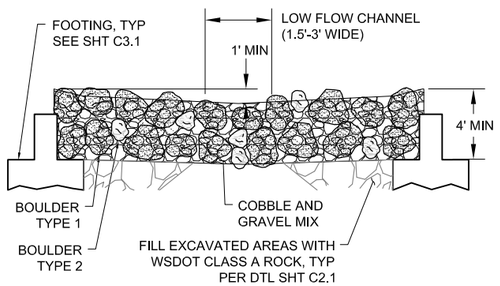
FILL MATERIAL	SIZE RANGE (IN DIA*)
BOULDERS, TYPE 1	24-30/700-1000 LBS
BOULDERS, TYPE 2	20-24/400-700 LBS
12" STREAMBED COBBLE	5-12
GRAVEL WITH FINES	2.5-0.03

* DIAMETER MEASURED ALONG INTERMEDIATE AXIS OF BOULDERS, COBBLE AND GRAVEL.



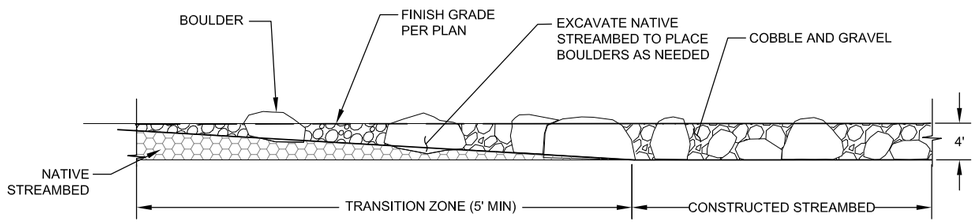
B TYPICAL POOL SECTION

SCALE: 1" = 5' (FOR 22X34" SHEETS)



C TYPICAL RIFFLE SECTION

SCALE: 1" = 5' (FOR 22X34" SHEETS)



NOTE: TRANSITION LINE EXTENDS FROM THE PROPOSED GRADE OF STREAMBED CONSTRUCTION TO NATIVE GROUND OVER TRANSITION LENGTH PER PLAN. TRANSITIONS CAN ALSO OCCUR FROM CUT SECTIONS TO NATIVE.

D CONSTRUCTED STEAMBED

NTS

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MARIA J. PAPADAKOS — STATE OF WASHINGTON — 48803 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

Date	Designed By
09/30/16	MJP
Drawn By	Checked By
MJP	ASZ

Sheet Name: CULVERT DETAILS

Sheet No.: C2.3

Project No.: D160362.00

DWG: I:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOTIC2.3_Culvert_Details.dwg USER: mjp
DATE: Oct 17, 2016 7:30am XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST+MJP_PE-WA

GENERAL RE□UIREMENTS

1. THE CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS, EXISTING CONDITIONS, AND NOTED ASSUMPTIONS. ANY DEVIATIONS SHALL BE COORDINATED WITH THE ENGINEER OF RECORD PRIOR TO PROCEEDING WITH THE RELATED WORK CONCERNING THE DEVIATION.
2. THE 2016 (WSDOT) STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND MUNICIPAL CONSTRUCTION WAS USED IN PREPARING THESE DESIGN DOCUMENTS. ALL CONSTRUCTION SHALL CONFORM TO THIS CODE.
3. ASSUMED LOADING:
   A. HL-93 LOADING
4. ALL DIMENSIONS TO TAKE PRECEDENCE OVER THE SCALE SHOWN ON THE PLANS, ELEVATIONS, SECTIONS, AND DETAILS.
5. THE CONTRACT STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL BRACING, SHORING, AND ALL OTHER NECESSARY METHODS RE□UIRED TO COMPLETE CONSTRUCTION.

CODES AND REFERENCES:

2016 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, WASHINGTON STATE DEPARTMENT OF TRANSPORTATION.

SUBMITTALS

1. SHOP DRAWINGS FOR ALL STRUCTURAL ITEMS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION AND CONSTRUCTION. SUCH ITEMS INCLUDE BUT ARE NOT LIMITED TO:
2. CONCRETE MIX DESIGNS, CONCRETE REINFORCEMENT (INCLUDING MILL TEST REPORTS), EMBEDDED STEEL ITEMS, AND STRUCTURAL PLATE ARCH CULVERT (INCLUDING MILL TEST REPORTS).

CONSTRUCTION NOTES

1. GEOTECHNICAL REPORT, PREPARED BY FOUNDATION ENGINEERING, INC. DATED AUGUST 25th, 2016, PROJECT #2162019, IS AVAILABLE FOR INFORMATIONAL PURPOSES.
2. ALL CONCRETE FOOTINGS SHALL BEAR ON AND BE NEATLY CUT INTO UNDISTURBED SILTSTONE PER GEOTECHNICAL REPORT.
3. TOP OF FOOTINGS TO BE A MINIMUM OF 1'-6" BELOW UNDISTURBED, NATIVE SOIL.
4. THE GEOTECHNICAL ENGINEER SHALL REVIEW THE EXCAVATION PRIOR TO THE PLACEMENT OF STRUCTURAL CONCRETE.
5. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS NOTED OTHERWISE.

CONCRETE AND REINFORCING STEEL

1. CONCRETE STRENGTH (28 DAY) 6,000 □□□
   A. REINFORCING INSPECTION ALONG WITH CYLINDER TESTS ARE RE□UIRED PER 6-02 OF WSDOT SPECIFICATIONS.
   B. THE CONTRACTOR SHALL PROVIDE A MIX DESIGN PER 6-02.3(2)A OF WSDOT SPECIFICATIONS.
2. REINFORCING STEEL
   A. □3 AND SMALLER (ASTM A615, GRADE 40) F□=40,000 □□□
   B. □4 AND LARGER (ASTM A615, GRADE 60) F□=60,000 □□□
3. MAKE HORIZONTAL BARS CONTINUOUS AROUND CORNERS OR PROVIDE CORNER BARS.
4. CEMENT SHALL BE TYPE I
5. PROVIDE COVER FOR REINFORCING AS SPECIFIED IN ACI-318-08, SECTION 7.7.1 AS FOLLOWS:

A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3 IN.
B. CONCRETE EXPOSED TO EARTH AND WEATHER	
□6 THROUGH □18	2 IN.
□5 BAR, AND SMALLER	1-1/2 IN.

6. WHERE SPLICES IN REINFORCING ARE RE□UIRED, THEY SHALL BE LAPPED AND STAGGERED SUCH THAT NO MORE THAN ONE-HALF OF THE BARS ARE LAP SPLICED WITHIN A RE□UIRED LAP LENGTH. THESE SHALL MEET THE RE□UIREMENTS OF A CLASS "B" SPLICE, GRADE 60 AND BE AS FOLLOWS:

BAR SIZE	TOP BARS□	OTHER BARS
□3 THROUGH □5	USE 40"	USE 32"
□6	USE 48"	USE 38"
□7	USE 70"	USE 54"
□8	USE 80"	USE 62"
□9	USE 92"	USE 72"
□10	USE 102"	USE 80"

* TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.

STRUCTURAL PLATE ARCH CULVERT

1. CONTRACTOR SHALL SUBMIT PLATE ARCH SHOP DRAWINGS AND DESIGN CALCULATIONS FOR REVIEW. STRUCTURAL PLATE ARCH SHOP DRAWINGS AND DESIGN CALCULATIONS SHALL BEAR THE SEAL AND SIGNATURE OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF WASHINGTON, PERTAINING TO THE PLATE ARCH STRUCTURE AND ITS CONNECTIONS.
2. DRAWINGS SHALL CLEARLY SHOW THE DIMENSIONS OF ALL COMPONENTS, MATERIALS, THICKNESSES AND SPECIAL DETAILS. DRAWINGS SHALL ALSO DETAIL THE ASSEMBLY PROCEDURE, BACKFILL SPECIFICATIONS AND BACKFILL PROCEDURES TO BE FOLLOWED. PLATE ARCH MANUFACTURER SHALL PROVIDE THEIR CORRUGATED STANDARD LENGTH TO OBTAIN MINIMUM CULVERT LENGTH.
3. PLATE ARCH SHALL HAVE A 25'-0" SPAN, AND HAVE A VERTICAL RISE OF 9'-0".
4. DESIGN CALCULATIONS SHALL BE BASED ON HL-93 TRUCK LOADING, 4.5 FEET OF COVER, AND CONFORMING TO WSDOT SPECIFICATIONS AND PRO□ECT SPECIAL PROVISIONS.
5. GAUGE OF STEEL SHALL BE AT LEAST ONE STANDARD GAUGE THICKER THAN THE MINIMUM THICKNESS RE□UIRED BY DESIGN.
6. DESIGN UNIT WEIGHT OF STRUCTURAL FILL SHALL BE 135 PCF.
7. ALL STRUCTURAL PLATE SHALL BE ZINC COATED AFTER FABRICATION.

STRUCTURAL OBSERVATION

1. THE ENGINEER OF RECORD WILL PERFORM STRUCTURAL OBSERVATION AT THE FOLLOWING CRITICAL STAGES OF CONSTRUCTION:
   A. PRIOR TO FOUNDATION CONCRETE PLACEMENT
   B. DURING INSTALLATION OF THE PLATE ARCH CULVERT
2. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER IN ADVANCE OF THE STAGES LISTED ABOVE. COPIES OF SITE OBSERVATION REPORTS AND FINAL OBSERVATION REPORT WILL BE SUBMITTED TO THE CONTRACTOR AND OWNER.

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

HOWARD A. WELLS STATE OF WASHINGTON 44031 REGISTERED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

COWLITZ INDIAN TRIBE

ERICK CREEK FISH PASSAGE

REVISION NUMBER

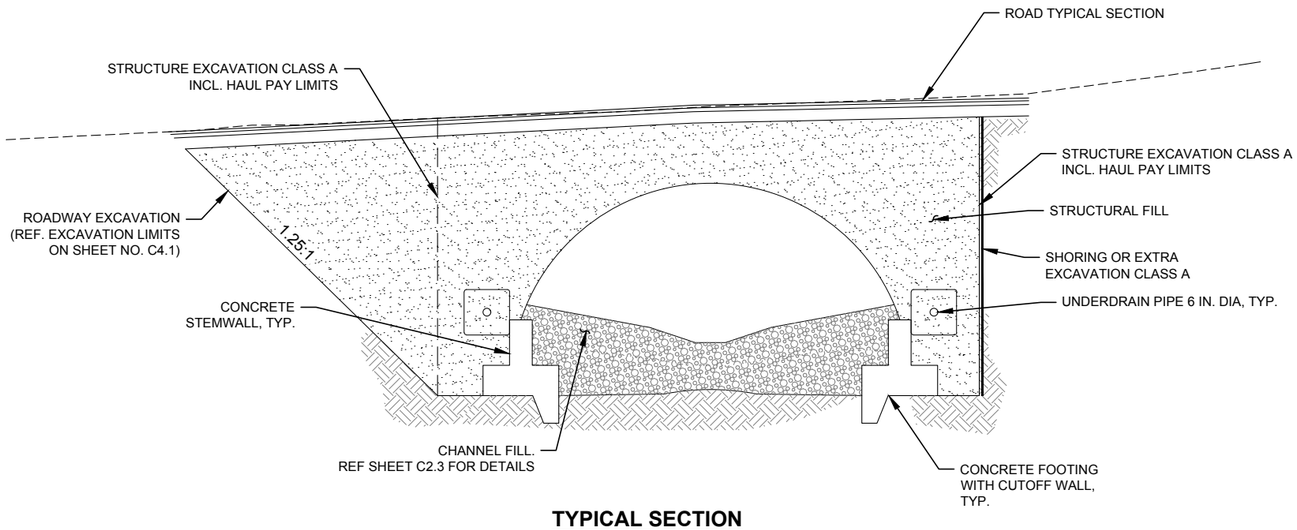
No.	Date	Revision

Date	Designed By
9/30/16	DMB
Drawn By	Checked By
□TH	□RB

Sheet Name
FOUNDATION NOTES

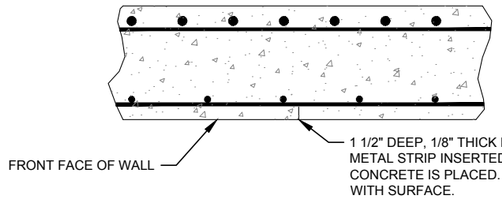
Sheet No.
C3.0

Project No.:
D160362.00



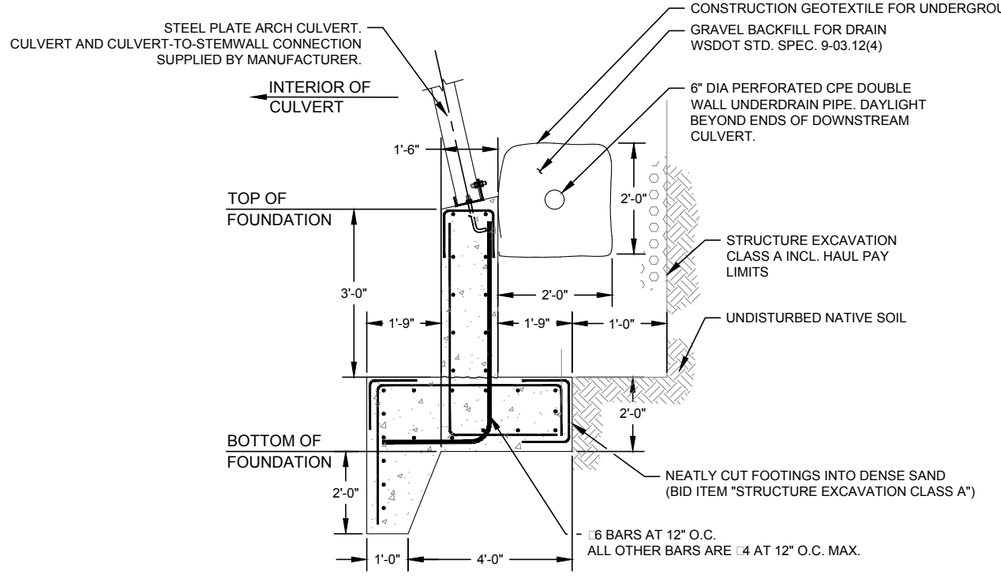
TYPICAL SECTION

SCALE: NTS



CONTROL JOINT DETAIL

SCALE: NTS



TYPICAL CULVERT FOUNDATION SECTION

SCALE: NTS

NOTES:

1. PLATE ARCH STEM WALL AND FOUNDATION HAS BEEN DESIGNED TO SUPPORT THE FOLLOWING UNFACTORED LOADS:

   VERTICAL DEAD = 9 K/FT
   LIVE = 5 K/FT

   HORIZONTAL DEAD = 1 K/FT
   LIVE = 0.5 K/FT

   (NOTE: HORIZONTAL LOAD REPRESENTS THRUST DIRECTED AWAY FROM CL OF THE CULVERT)

2. CONCRETE FOUNDATION SHALL BE BROOM FINISHED.

3. SEE SHEET C2.0 FOR FOUNDATION ELEVATIONS.

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

HOWARD A. WELLS
STATE OF WASHINGTON
14031
REGISTERED
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

COWLITZ INDIAN TRIBE

ERICK CREEK FISH PASSAGE

REVISION NUMBER

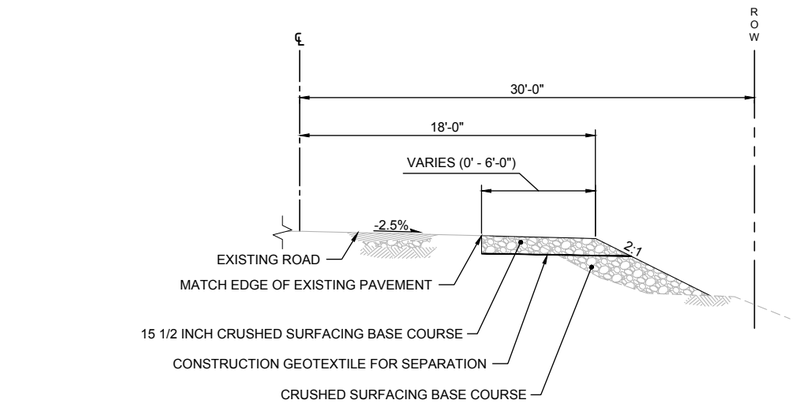
No.	Date	Revision

Date	Designed By
9/30/16	DMB
Drawn By	Checked By
JTH	JRB

Sheet Name
FOUNDATION SECTIONS AND DETAILS

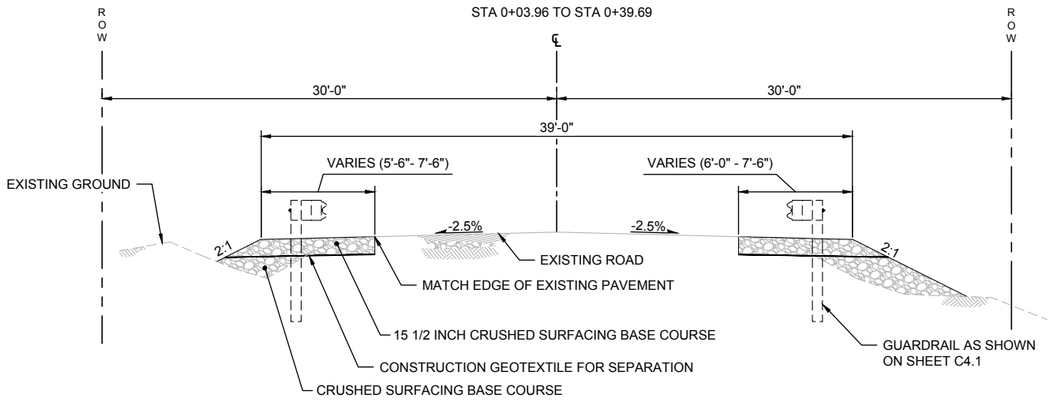
Sheet No.
C3.1

Project No.:
D160362.00



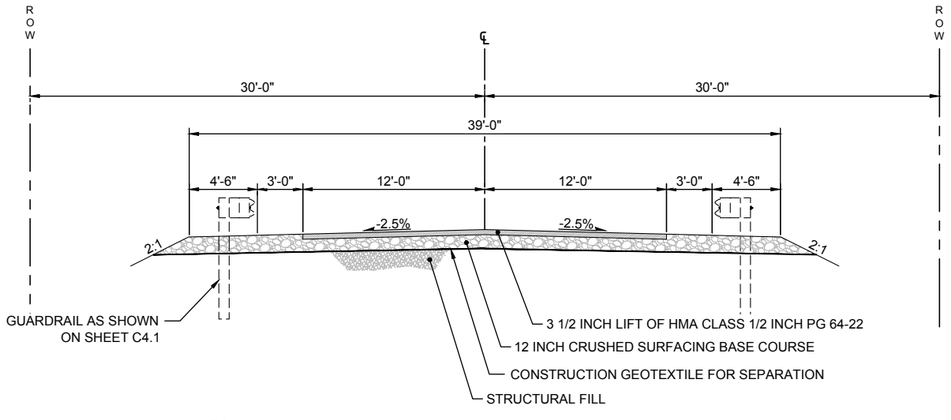
1 - TYPICAL SECTION - ABERNATHY CREEK ROAD
SCALE: NOT TO SCALE

STA 0+03.96 TO STA 0+39.69



2 - TYPICAL SECTION - ABERNATHY CREEK ROAD
SCALE: NOT TO SCALE

STA 0+39.69 TO STA 0+85.19



3 - TYPICAL SECTION - ABERNATHY CREEK ROAD
SCALE: NOT TO SCALE

STA 0+85.19 TO STA 1+85.82

1. ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION.
2. GEOTEXTILE SHALL CONFORM TO WSDOT SPEC. 9-33.2, TABLE 3 - SEPARATION.
3. ALL DEPTHS SPECIFIED ARE FULL COMPACTED DEPTHS.
4. MATCH EXISTING ROAD PAVEMENT SLOPE.
5. REFERENCE WSDOT STD PLANS, SECTION C, FOR GUARDRAIL PLACEMENT AND DETAILS.
6. REFERENCE WSDOT STD PLAN M-20.10-02 FOR PAINT LINES, EDGE LINE AND DOUBLE CENTERLINE.

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

HOWARD A. WELLS — STATE OF WASHINGTON — 34031 — REGISTERED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

COWLITZ INDIAN TRIBE

ERICK CREEK FISH PASSAGE

REVISION NUMBER

No.	Date	Revision

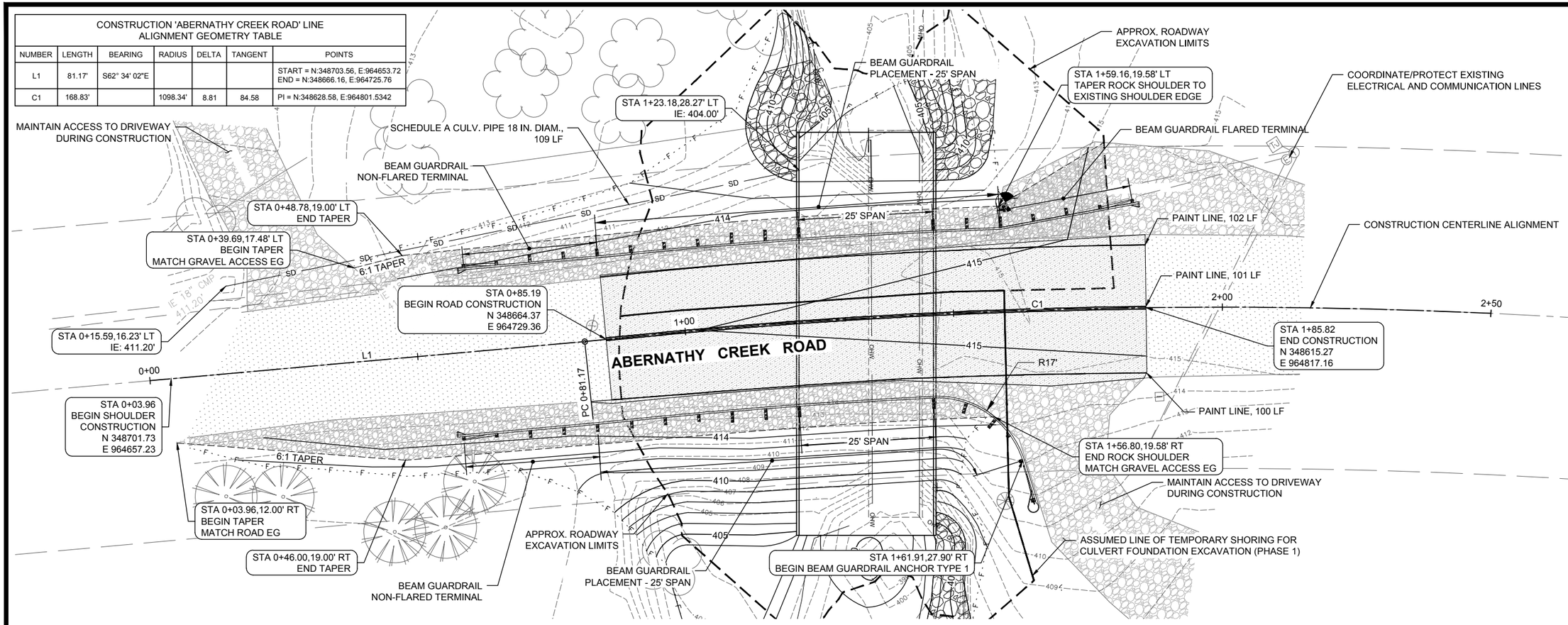
Date: 9/30/16 | Designed By: DMB
Drawn By: JTH | Checked By: JRB

Sheet Name: ROADWAY TYPICAL SECTION

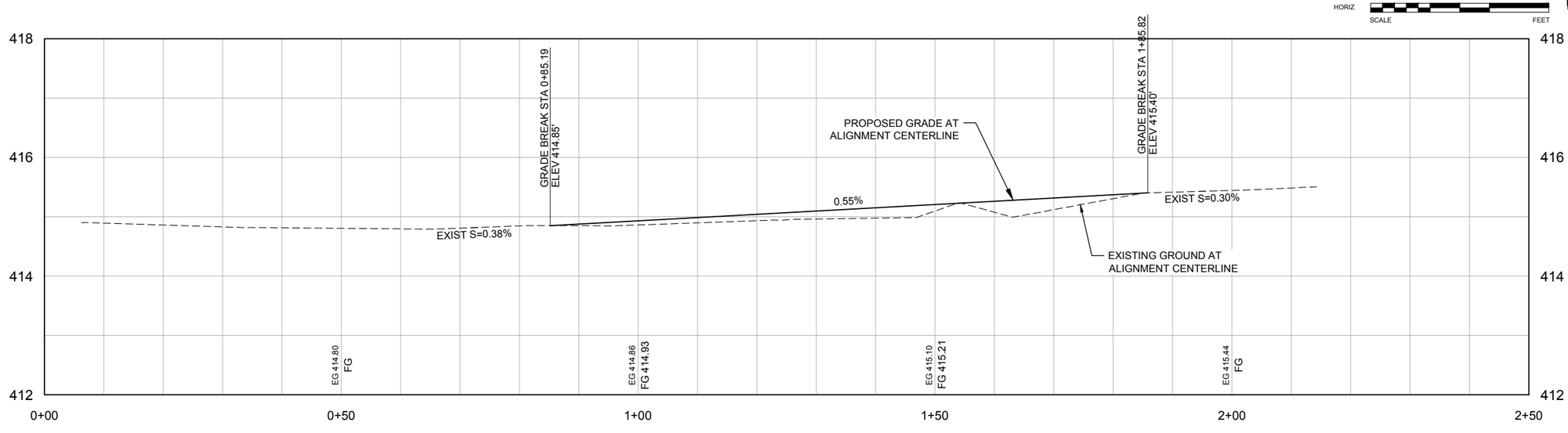
Sheet No.: C4.0

Project No.: D160362.00

CONSTRUCTION 'ABERNATHY CREEK ROAD' LINE ALIGNMENT GEOMETRY TABLE						
NUMBER	LENGTH	BEARING	RADIUS	DELTA	TANGENT	POINTS
L1	81.17'	S62° 34' 02"E				START = N:348703.56, E:964653.72 END = N:348666.16, E:964725.76
C1	168.83'		1098.34'	8.81	84.58	PI = N:348628.58, E:964801.5342



PLAN



PROFILE

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

HOWARD A. WELLS — 14031 — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — NOT FOR CONSTRUCTION

COWLITZ INDIAN TRIBE

ERICK CREEK FISH PASSAGE

REVISION NUMBER

No.	Date	Revision

Date	Designed By
9/30/16	DMB
Drawn By	Checked By
JTH	JRB

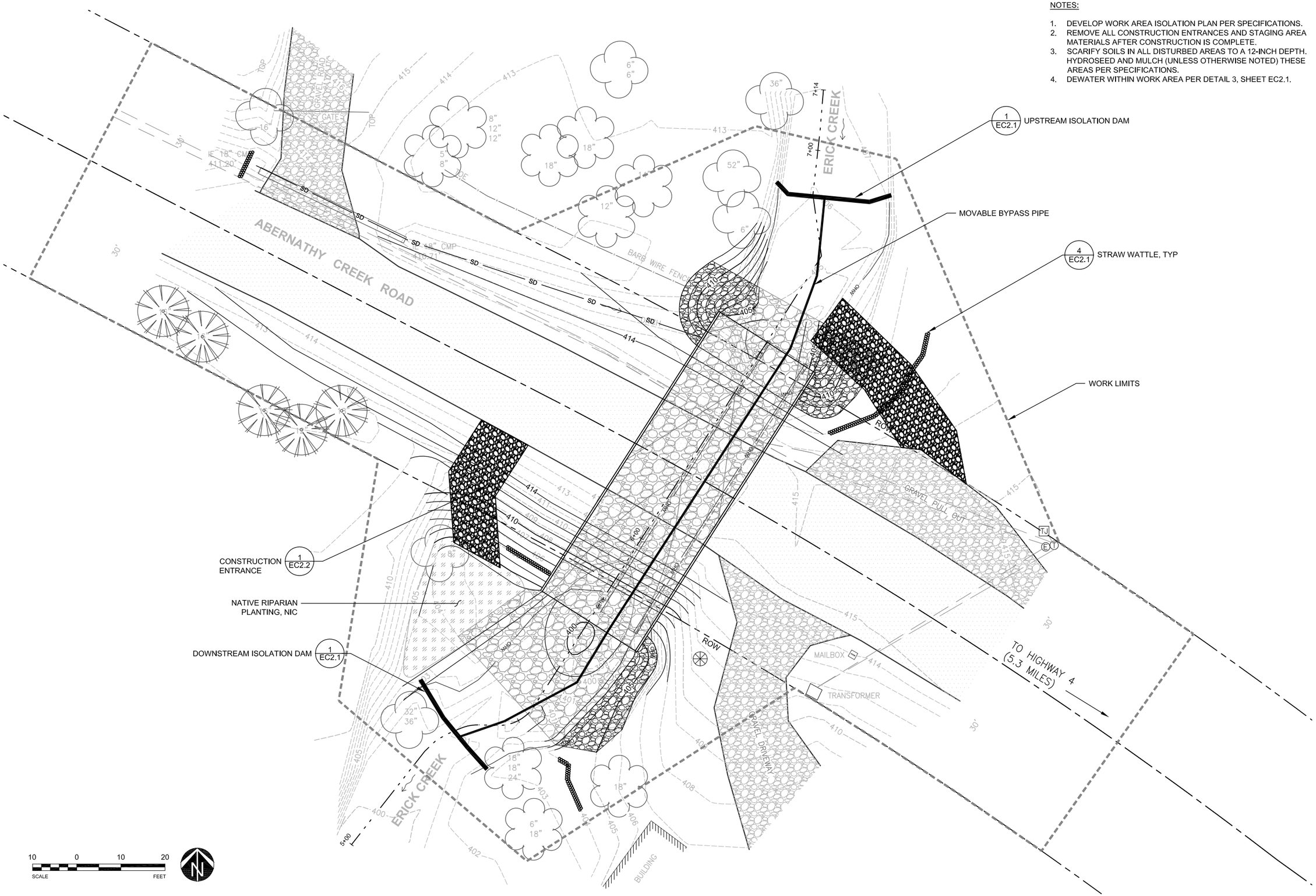
Sheet Name
ROADWAY PLAN AND PROFILE

Sheet No.
C4.1

Project No.:
D160362.00

NOTES:

1. DEVELOP WORK AREA ISOLATION PLAN PER SPECIFICATIONS.
2. REMOVE ALL CONSTRUCTION ENTRANCES AND STAGING AREA MATERIALS AFTER CONSTRUCTION IS COMPLETE.
3. SCARIFY SOILS IN ALL DISTURBED AREAS TO A 12-INCH DEPTH. HYDROSEED AND MULCH (UNLESS OTHERWISE NOTED) THESE AREAS PER SPECIFICATIONS.
4. DEWATER WITHIN WORK AREA PER DETAIL 3, SHEET EC2.1.



ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PAPOCALLO
STATE OF WASHINGTON
49603
REGISTERED PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name

EROSION CONTROL PLAN

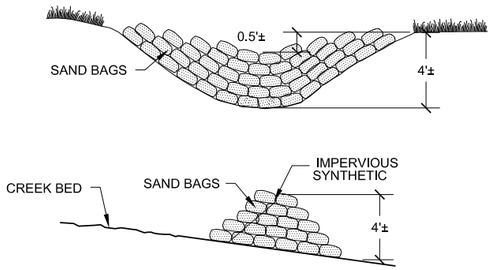
Sheet No.

EC1.0

Project No.:

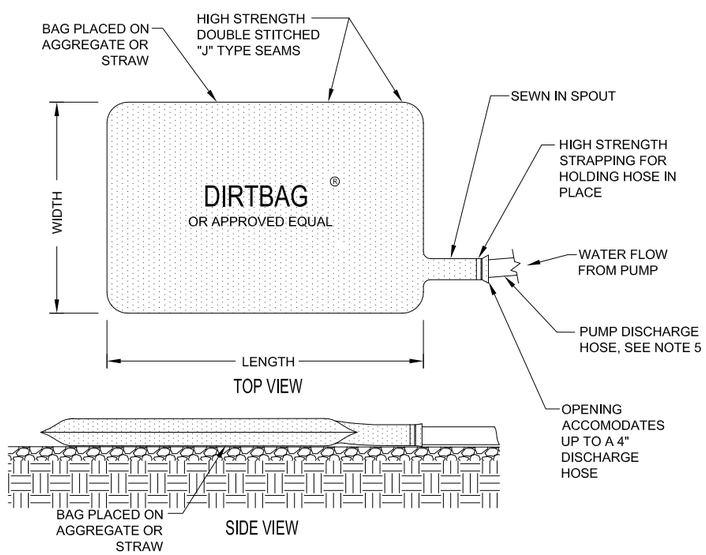
D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\EC1.0_Erosion_Control_Plan.dwg USER: mjp
DATE: Oct 17, 2016 7:33am XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ST-MJP_PE-WA



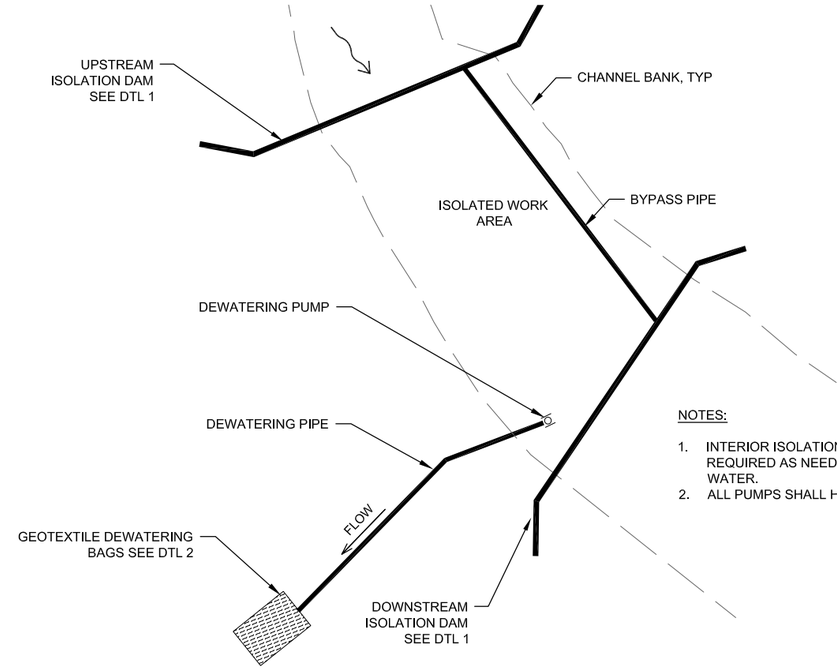
NOTE:
1. CONSTRUCTION CREWS SHALL INSTALL ISOLATION DAMS AS SHOWN ON PLAN TO ISOLATE THE EXCAVATION AREAS.
2. IN ADDITION TO SAND BAGS, USE AN IMPERVIOUS SYNTHETIC LINER TO REDUCE PERMEABILITY OF DAM.
3. HEIGHT OF THE DAM SHALL BE HIGH ENOUGH TO PREVENT BYPASS FLOWS FROM ENTERING THE ISOLATED WORK AREA. DAM HEIGHTS AND MATERIALS SHALL BE INCLUDED IN THE CONTRACTOR'S WORK AREA ISOLATION PLAN.

1 TEMPORARY ISOLATION DAM
NOT TO SCALE



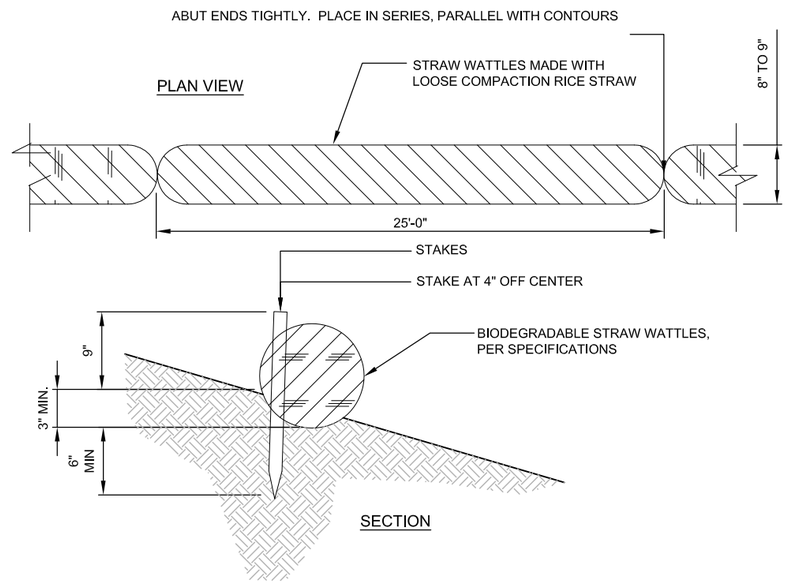
NOTES
1. THE GEOTEXTILE BAG SHALL BE ATTACHED TO THE EFFLUENT PIPE FROM THE DEWATERING PUMP. THE PLACEMENT OF THE GEOTEXTILE BAG SHALL BE INCLUDED IN THE CONTRACTOR'S DEWATERING PLAN.
2. AVOID PLACEMENT OF THE GEOTEXTILE BAG ABOVE STEEP SLOPES OR WHERE SATURATED SOIL CONDITIONS MAY CAUSE SOIL INSTABILITY.
3. INSTALL THE GEOTEXTILE BAG ON A MILD SLOPE SO INCOMING WATER FLOWS DOWNHILL THROUGH THE BAG. DISPOSE OF CAPTURED SEDIMENT OFFSITE.
4. THE GEOTEXTILE BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR PASS WATER AT A REASONABLE RATE. DISPOSE OF THE GEOTEXTILE BAG AS DIRECTED BY THE ENGINEER.
5. THE FINAL DISCHARGE LOCATION MUST BE SUBMITTED FOR REVIEW BY THE ENGINEER AS PART OF THE WORK CONTAINMENT AND DEWATERING PLAN.

2 GEOTEXTILE DEWATERING BAG
NOT TO SCALE



NOTES:
1. INTERIOR ISOLATION DAMS MAY BE REQUIRED AS NEEDED TO CONTROL WATER.
2. ALL PUMPS SHALL HAVE FISH SCREENS.

3 WORK AREA DEWATERING, TYP
NOT TO SCALE



4 STRAW WATTLES
NOT TO SCALE

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PAPOGALLO
STATE OF WASHINGTON
49603
REGISTERED PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

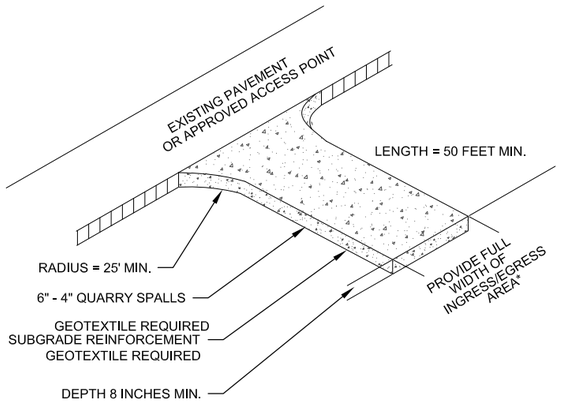
Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name
EROSION CONTROL DETAILS 1

Sheet No.
EC2.1

Project No.:
D160362.00

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\EC2.2_Erosion_Control_Details.dwg USER: mjp
DATE: Oct 17, 2016 7:37am XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ERICK_CREEK_DETAILS ST-MJP_PE-WA



1 CONSTRUCTION ENTRANCE

NOT TO SCALE

DWG: U:\PROJECTS\PDX\Projects\2016\D160362.00 Erick Creek Fish Passage\08 CAD\PLOT\EC2.2_Erosion_Control_Details.dwg USER: mjp
DATE: Oct 17, 2016 7:39am XREFS:Erick_Creek_TITL_22x34 D160362_BASE D160362 SURVEY ERICK_CREEK_DETAILS ST-MJP_PE-WA

ESA
819 SE Morrison St, Suite 310
Portland, OR 97214
P: (503) 274-2010
F: (503) 274-2024

MAURIA J. PAPOCALLO
STATE OF WASHINGTON
49603
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES

Cowlitz Indian Tribe

Erick Creek Fish Passage

REVISION NUMBER

No.	Date	Revision
X	DATE	NOTE

Date	Designed By
09/30/16	MJP
Drawn By	Checked By
EMG	ASZ

Sheet Name

EROSION CONTROL DETAILS 2

Sheet No.

EC2.2

Project No.:

D160362.00