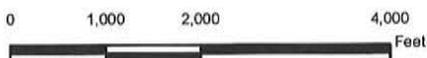


Legend

- Proposed Kalama Energy Pipeline
- NWP Ignacio to Sumas Mainline
- Mileposts



Northwest Pipeline LLC
Kalama Lateral Project



Figure 1
General Location

Cowlitz County, Washington





Figure 2B
Kalama Lateral Project
Northwest Pipeline LLC
 Wetland and Riparian Buffers

REVISID: 11/15/2012 DRAWN BY: JPBOENTJE



Sheet 1 of 4 1:6,000

Proposed Timber Rock Route

- Proposed Timber Rock Route
- Permanent ROW
- Construction ROW
- TEWA

Wetland and Riparian Buffers

- Delineated Wetland
- NWI Wetland
- Intermittent Stream
- Perennial Stream
- Buffer

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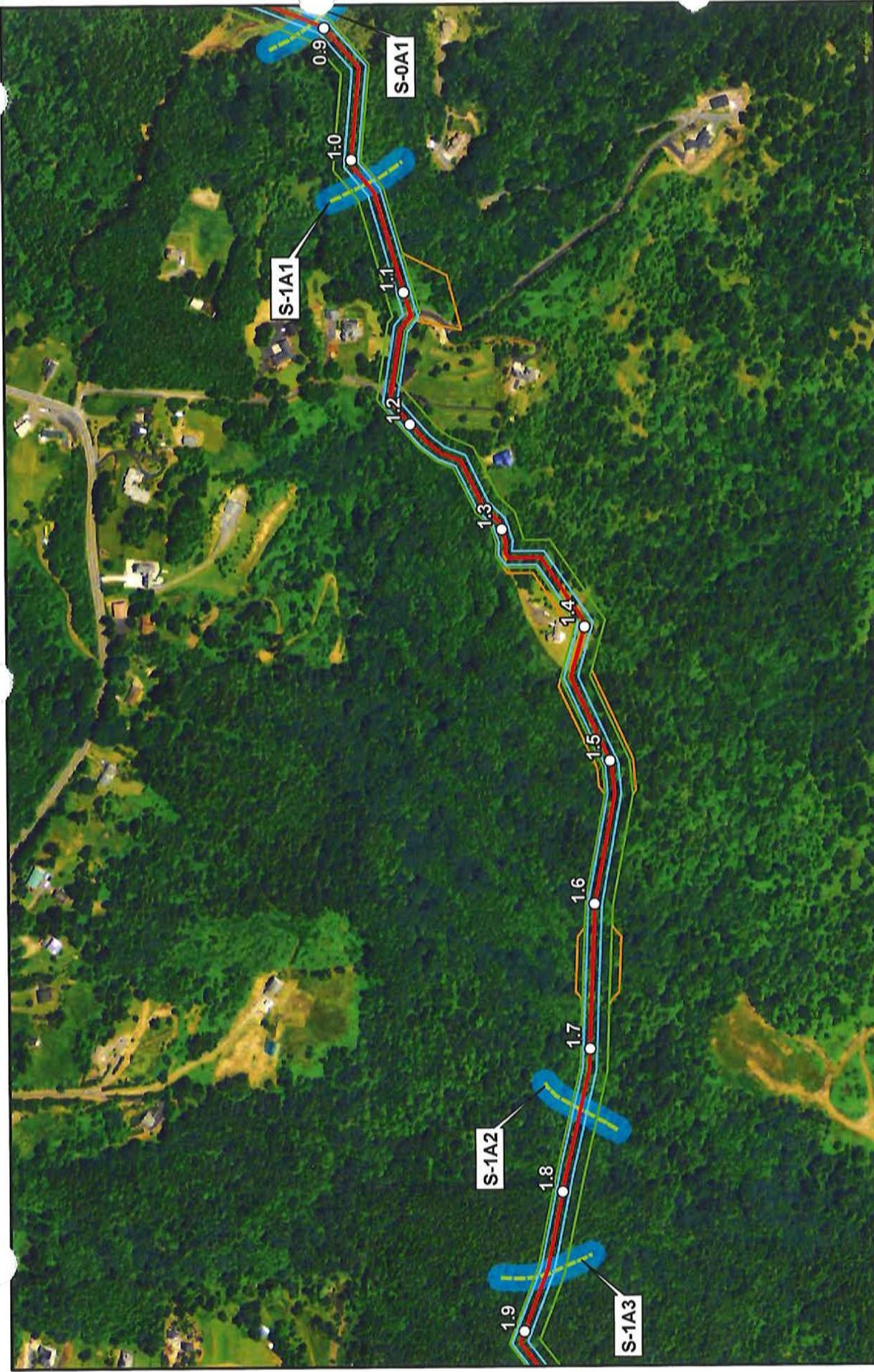




Figure 2B
Kalama Lateral Project
Northwest Pipeline LLC
 Wetland and Riparian Buffers

REVISED: 11/15/2012 | DRAWN BY: JPBOENTJE



Sheet 2 of 4 1:6,000

Proposed Timber Rock Route

- Proposed Timber Rock Route
- Permanent ROW
- Construction ROW
- TEWA

Wetland

- Delineated Wetland
- NWI Wetland
- Intermittent Stream
- Perennial Stream
- Buffer

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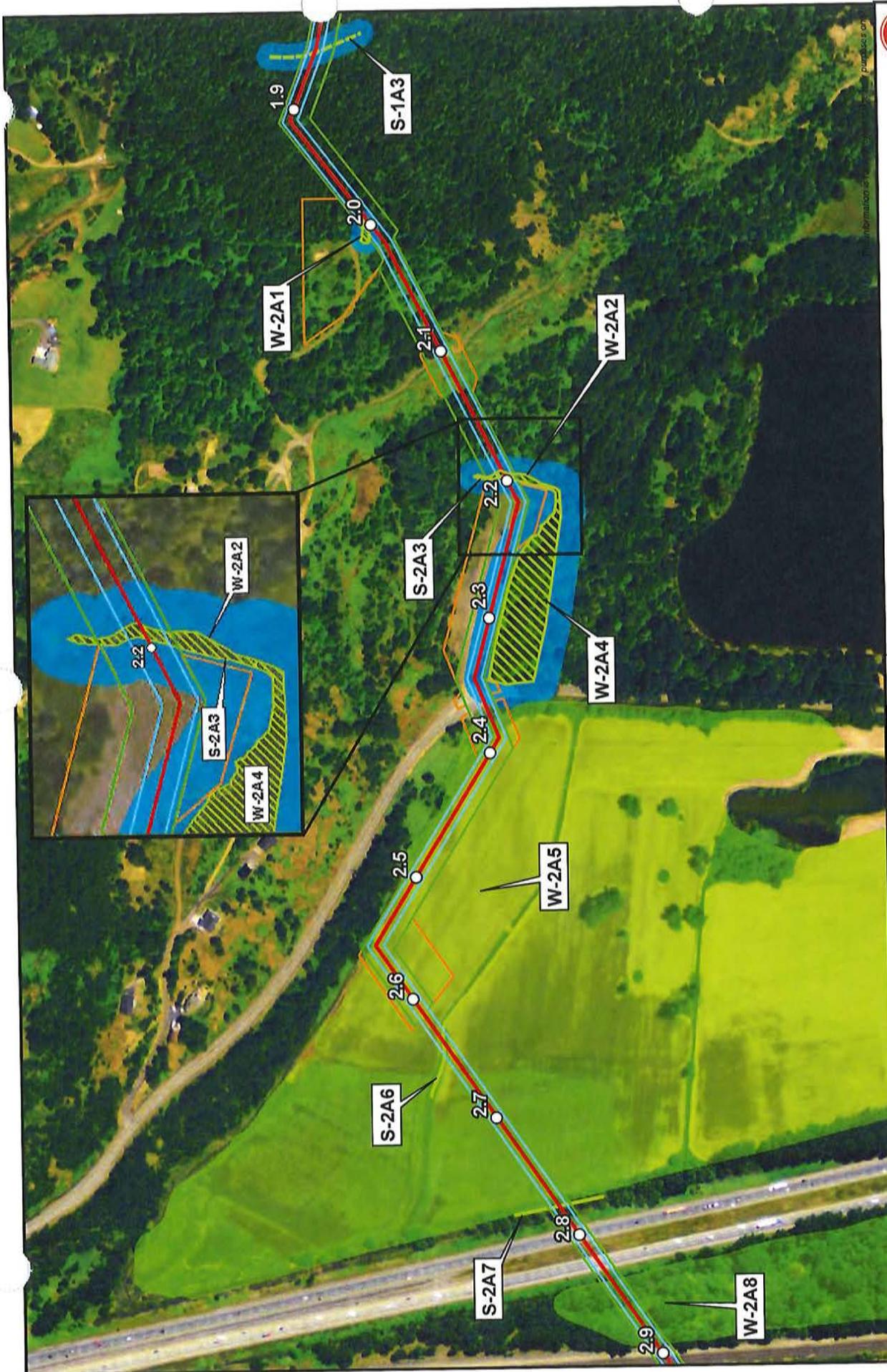




Figure 2B
Kalama Lateral Project
Northwest Pipeline LLC
Wetland and Riparian Buffers



	Proposed Timber Rock Route		Delineated Wetland
	Permanent ROW		NWI Wetland
	Construction ROW		Intermittent Stream
	TEWA		Perennial Stream
			Buffer

Sheet 3 of 4 1:6,000

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Figure 2B

Kalama Lateral Project

Northwest Pipeline LLC

Wetland and Riparian Buffers



<ul style="list-style-type: none"> Proposed Timber Rock Route Permanent ROW Construction ROW TEWA 	<ul style="list-style-type: none"> Delineated Wetland NMI Wetland Intermittent Stream Perennial Stream Buffer
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0 250 500
Feet



N

Sheet 4 of 4

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REVISED: 11/15/2012 | DRAWN BY: JPBOENTJE

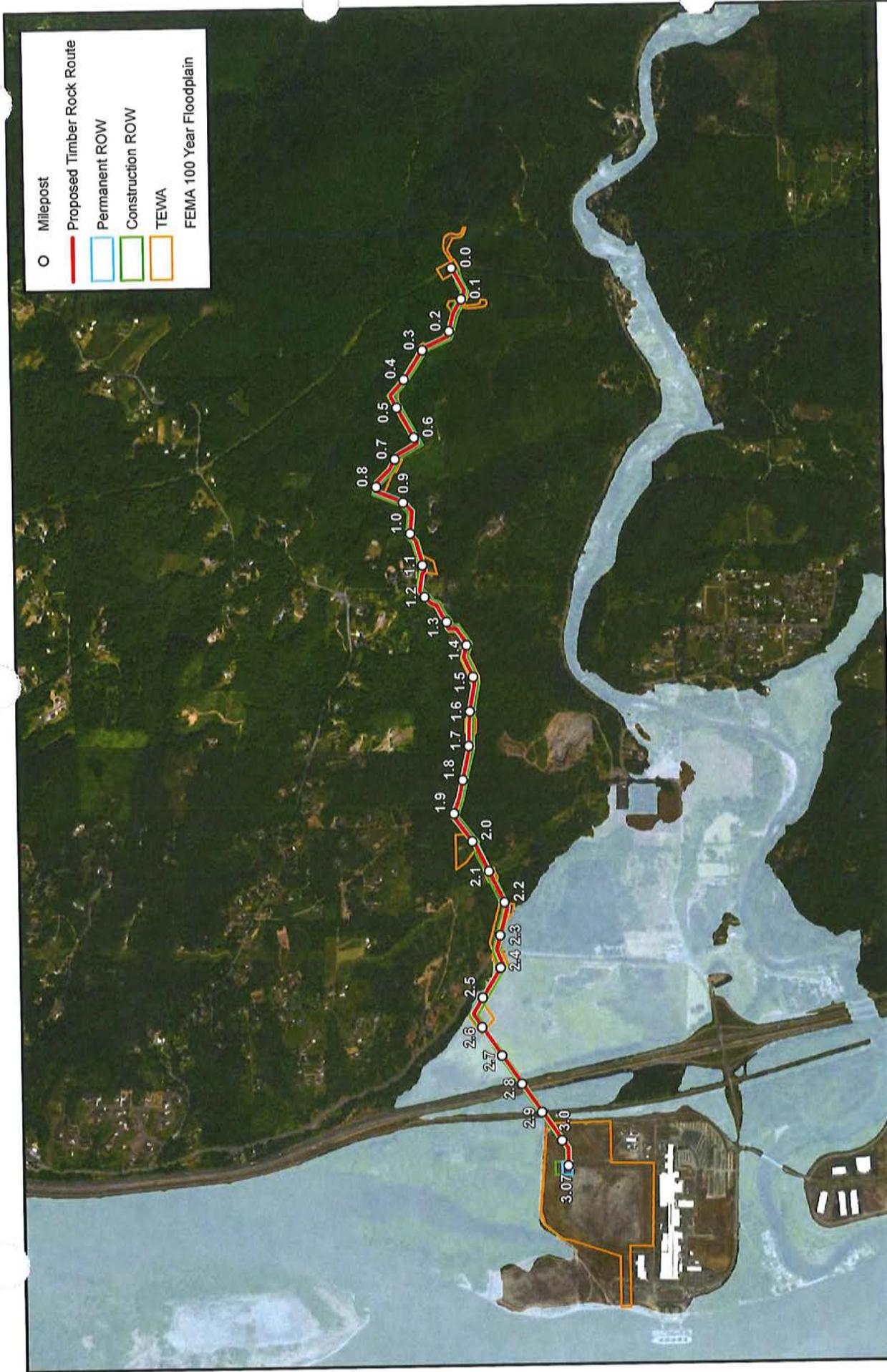


Figure 3
Kalama Lateral Project
Northwest Pipeline LLC
FEMA 100 Year Floodplain

Williams

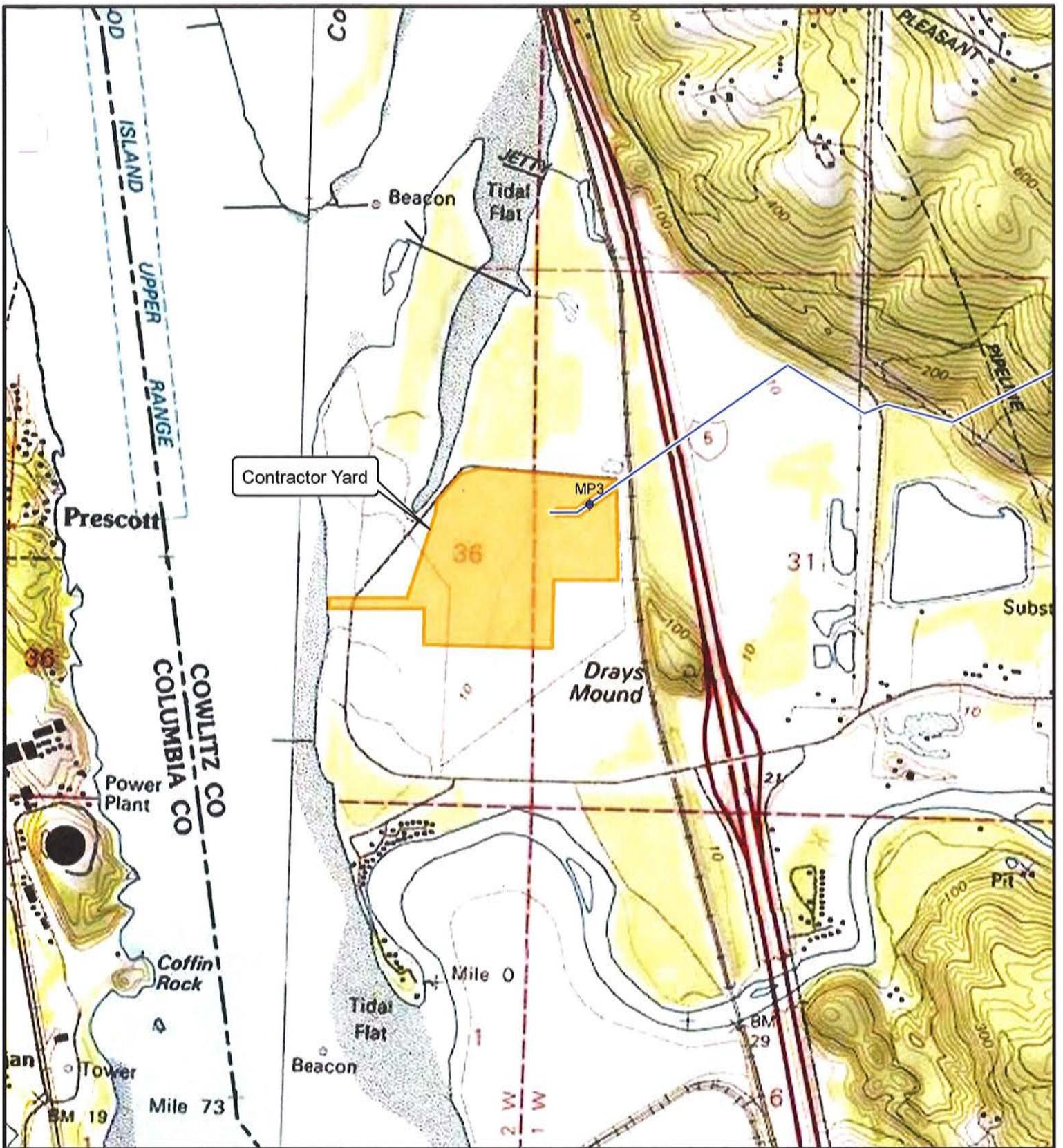
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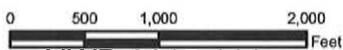
REVISD: 10/31/2014 DRAWN BY: JPBOENTJE

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Legend

-  Proposed Kalama Energy Pipeline
-  Contractor Yard
-  Mileposts

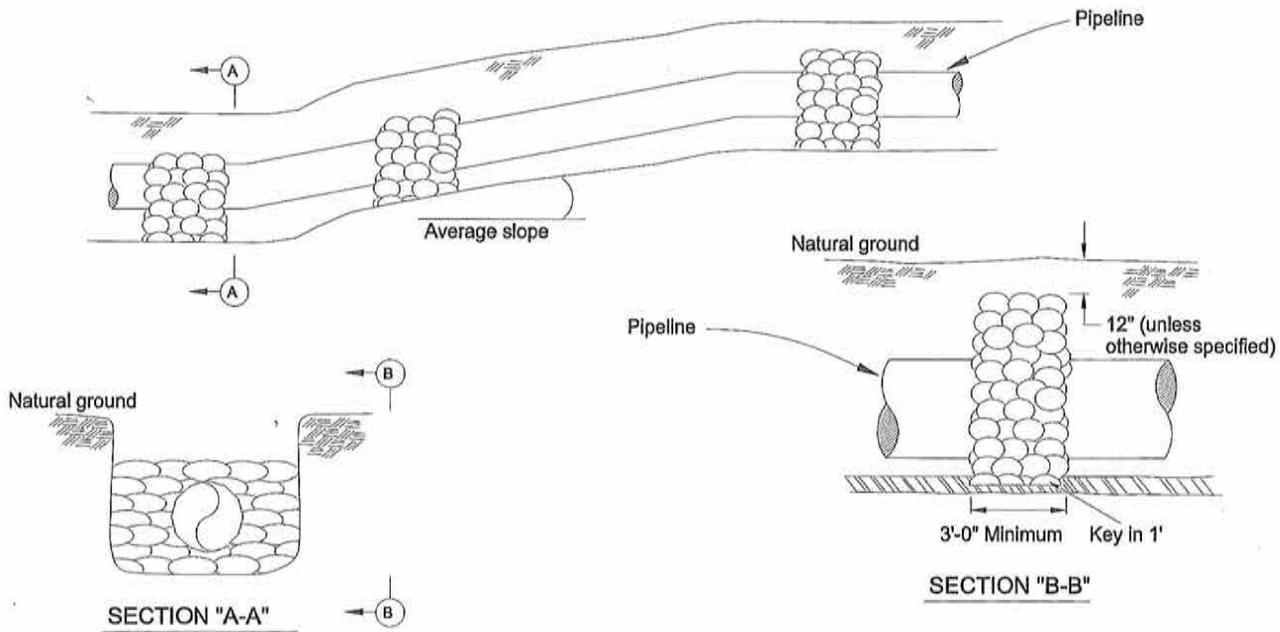


Northwest Pipeline LLC
Kalama Lateral Project

Figure 4



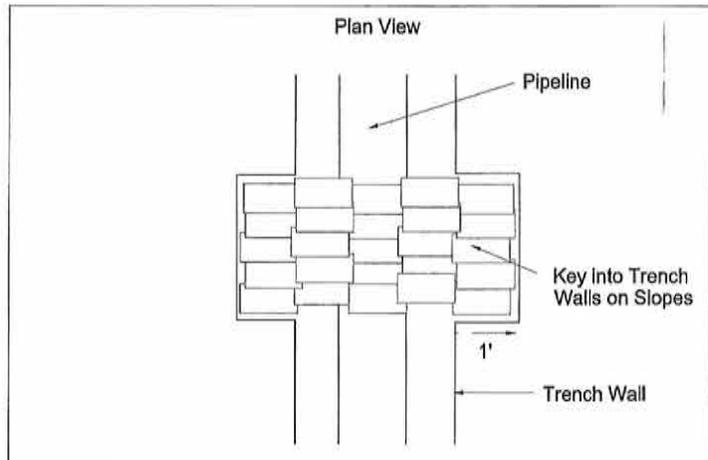
Contractor Yard
Cowlitz County, Washington



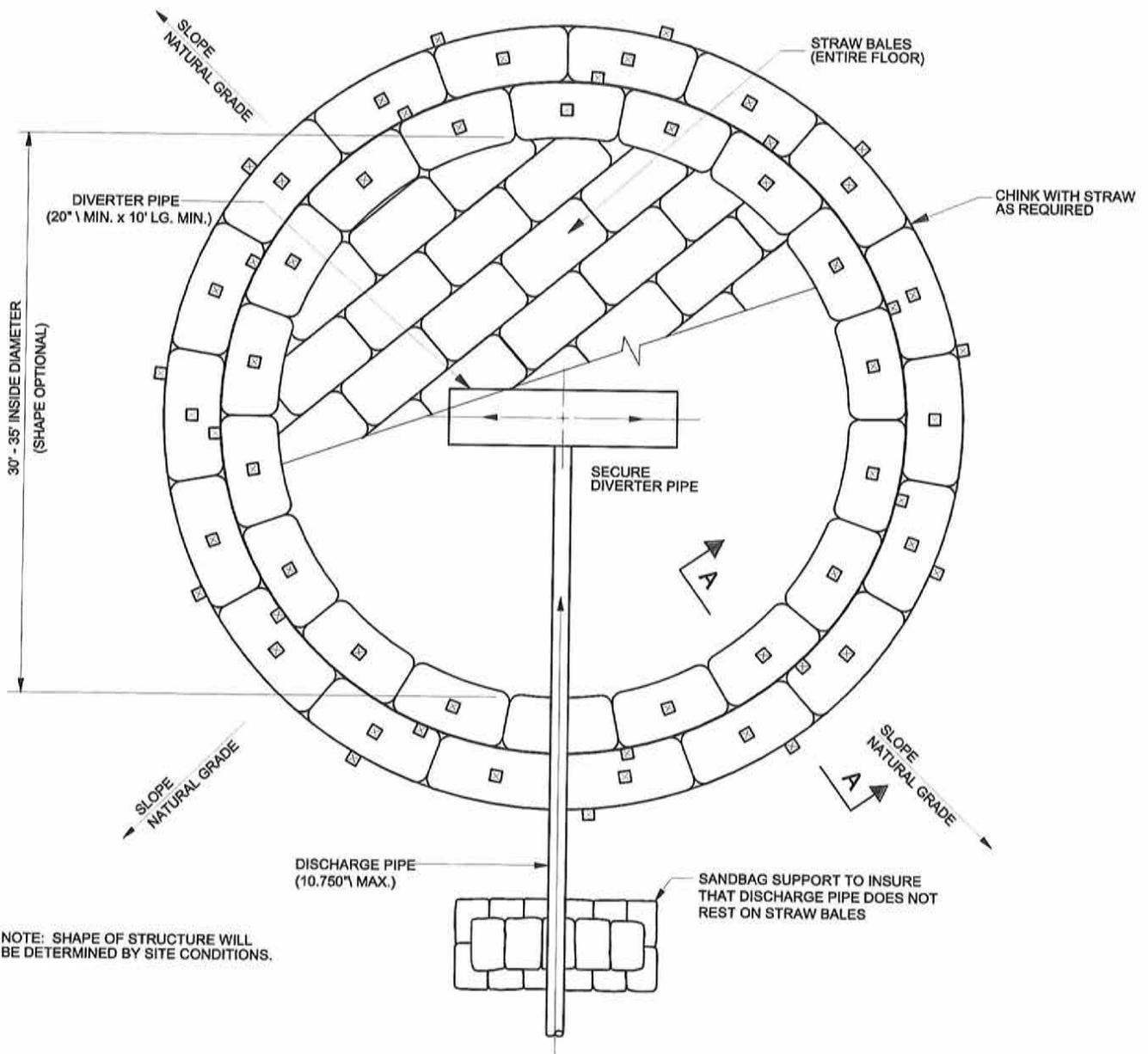
Topsoil shall not be used in trench breakers.

Spacing of trench breakers shall be as shown on the Environmental Construction Alignment sheets or as directed by Northwest Pipeline LLC authorized representative. Soft plugs (unexcavated sections along the pipeline trench line) may be left in place to perform function of permanent breakers prior to pipe placement.

SLOPE PERCENT	SPACING (feet)
10-15	500
15-20	300
20-30	150
>30	100



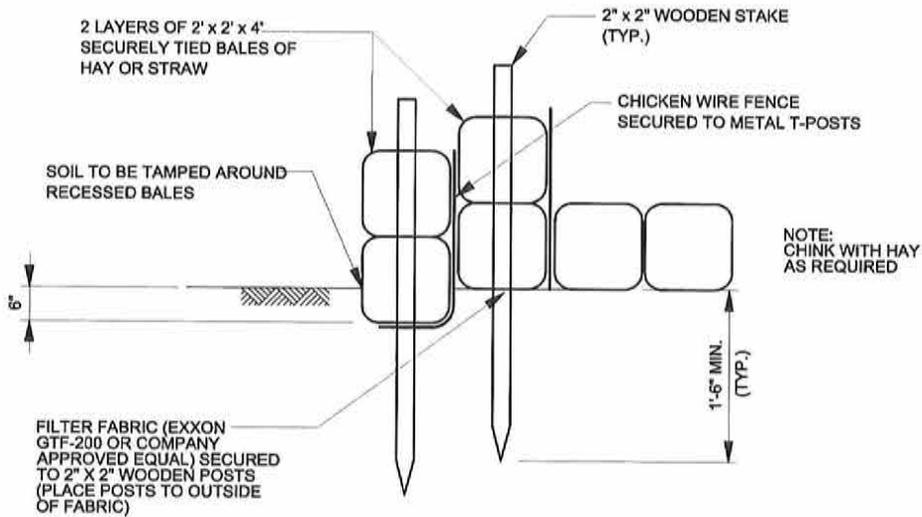
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DRAWING NO.	TITLE											
REVISIONS						DRAWN BY:	NWP	DATE:	9-02-2014	ISSUED FOR BID:	SCALE:	NONE
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:			
							APPROVED BY:	DATE:	DRAWING NUMBER:	2504.34-X-0001	SHEET	1
											OF	1



HYDROSTATIC TEST DEWATERING STRUCTURE

TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT			Williams GAS PIPELINE			
DRAWING NO.	TITLE											
						TYPICAL HYDROSTATIC TEST DEWATERING STRUCTURE						
REVISIONS						DRAWN BY:	NWP	DATE:	9-02-2014	ISSUED FOR BID:	SCALE:	NONE
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:		ISSUED FOR CONSTRUCTION:		
										DRAWING NUMBER: 2504.34-X-0002	SHEET	1
						APPROVED BY:	DATE:				ENCLOSURE	2
												3



SECTION A-A

NOTE:
STAKES SECURING FILTER FABRIC AND
CHICKEN WIRE FENCE ARE NOT SHOWN
FOR CLARITY

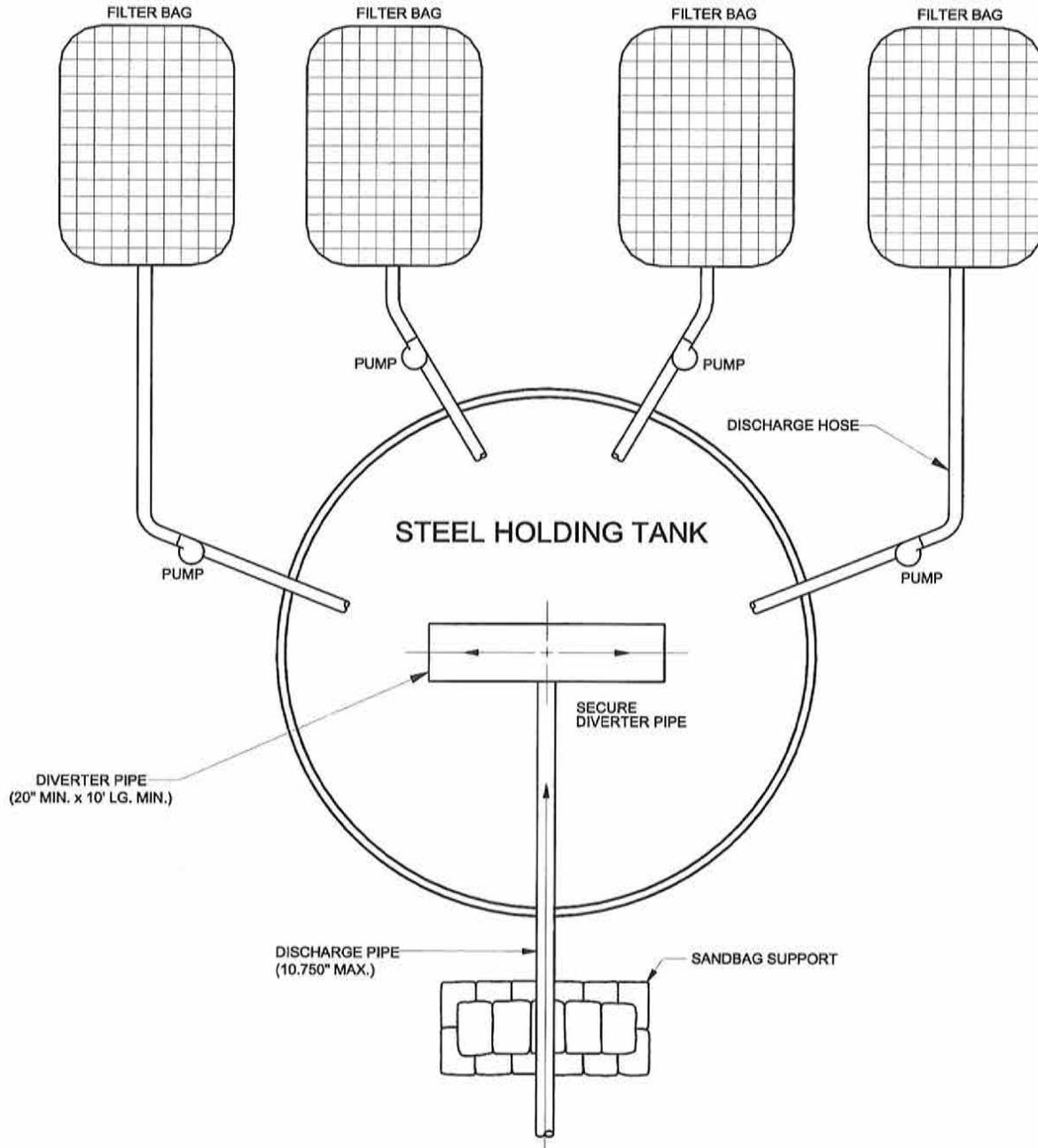
NOTES:

1. Structure shall be placed on a level well vegetated site such that water will flow away from structure and any work areas.
2. Flow rates through discharge and diverter pipes shall be such that structure will not overflow.
3. Where conditions warrant a 30' x 30' rectangular structure may be substituted for the circular configuration shown.
4. Dimensions shown are the minimum acceptable values and may be varied depending upon specific location.
5. Contractor shall use certified noxious weed free hay or straw for structure.

HYDROSTATIC TEST DEWATERING STRUCTURE

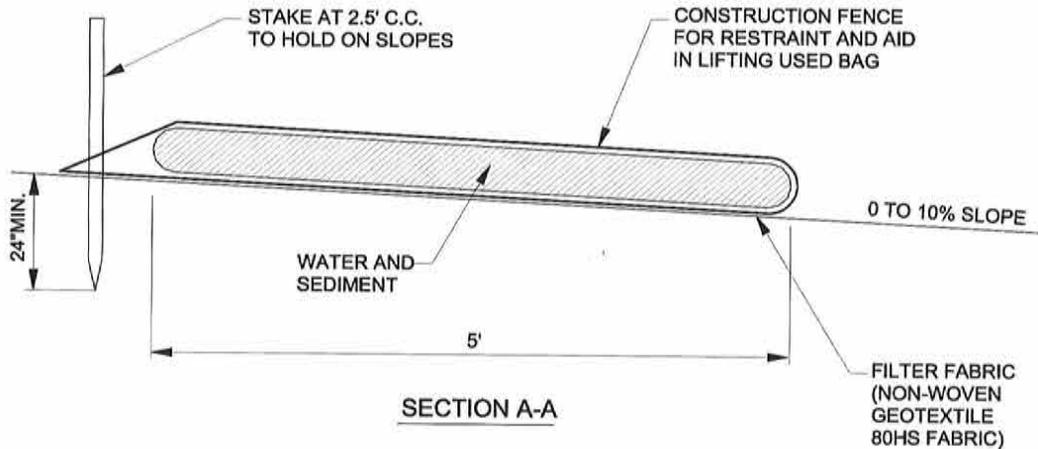
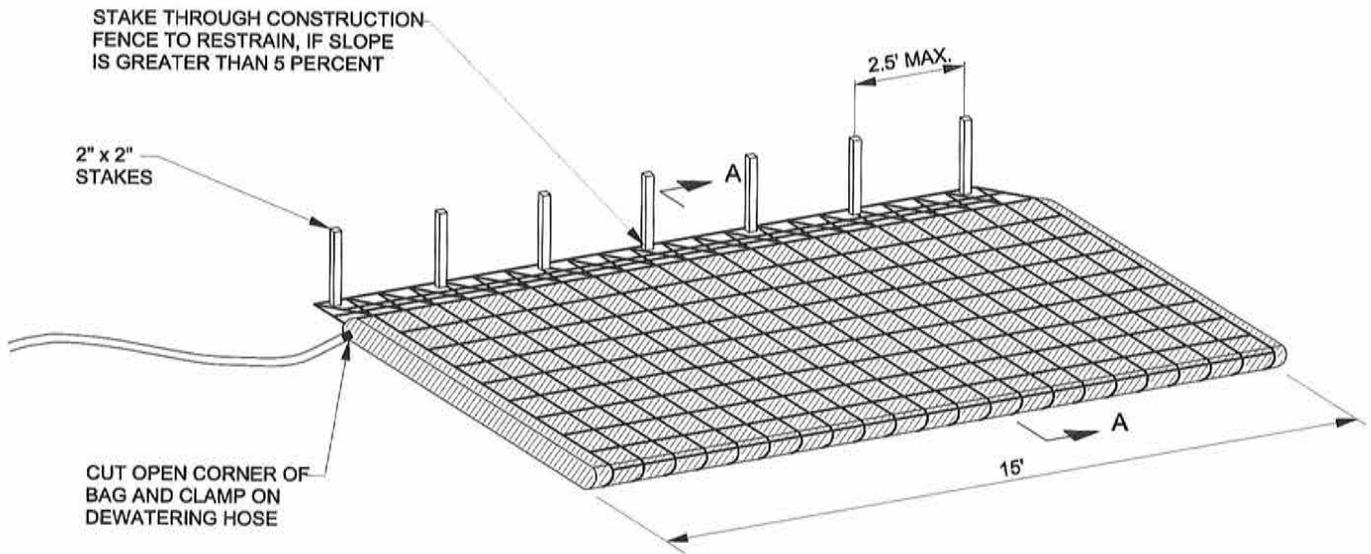
TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS				NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT					
DRAWING NO.	TITLE								
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NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0002
									SHEET 2 OF 3



HYDROSTATIC TEST DEWATERING STRUCTURE
TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS				NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT					
DRAWING NO.	TITLE								
REVISIONS				DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE		
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0002
NWP-2015-111				Page 11 of 30				SHEET 3 OF 3	
Joint Public Notice				Enclosure 2 OF 3					

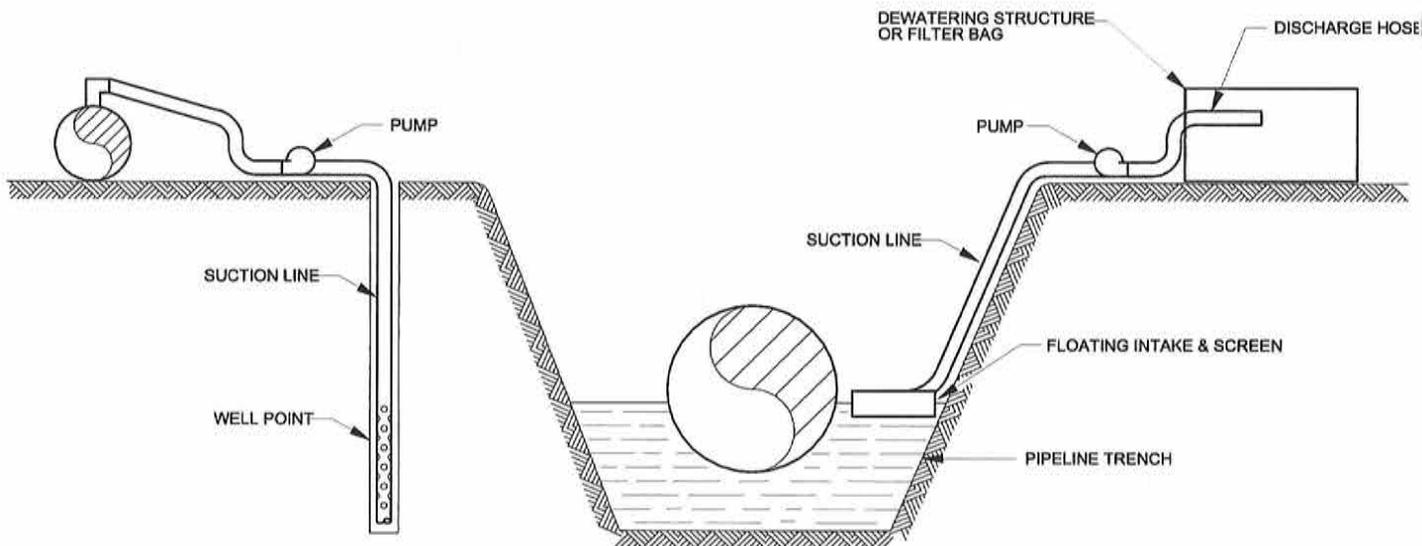


NOTES:

1. Filter bag shall be placed on a gently sloping or level, well graded vegetated site such that water will flow away from device, any work areas, waterbodies or wetlands.
2. The filter bag must be staked in place and secured to the pump discharge line.
3. Filter bag shall not be used for discharge flows greater than 300 gpm.
4. Device shall be removed and disposed of after bag is filled with sediment. sediment from bag shall be spread in an upland area.

TRENCH DEWATERING TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS				NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT					
DRAWING NO.	TITLE								
				TYPICAL TRENCH DEWATERING					
REVISIONS				DRAWN BY:	DATE:	ISSUED FOR BID:	SCALE:	NONE	
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
				APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0003		SHEET	1
								OF	3



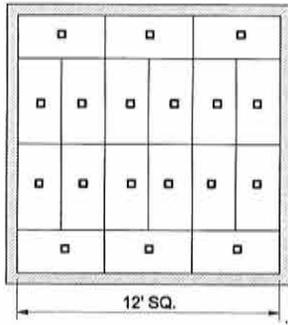
NOTES:

1. Dewatering measure/methods
 - a. Pump water to a filtering structure typically constructed with hay bales or geotextile and discharge as "sheet flow" out of structure. (see sht. 3)
 - b. Pump water into a filter bag. (see sht. 1)
 - c. Pump water to a settling tank and haul to a disposal site.
 - d. Pump water to a settling tank and discharge overland.
 - e. Transfer water to next section of trench.
 - f. Install well points and pump to filtering structure and discharge to drainage, channel or sheet flow.
 - g. Install well points and discharge sheet flow.
 - h. Dispose of water collected in tank or filtration structure by aeration through a sprinkler system.
2. Water pumped out of trench shall not be discharged into waterbodies or wetlands.
3. Pump shall be controlled so that discharge does not overflow dewatering structure.
4. Pump suction hose must not be allowed to settle the trench bottom. provisions must be made to elevate the suction hose to at least one foot above the bottom until bottom dewatering is necessary.

TRENCH DEWATERING

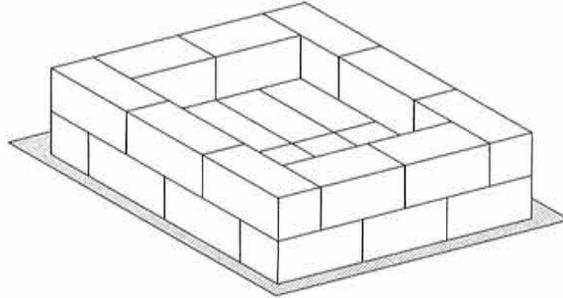
TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS				NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT TYPICAL TRENCH DEWATERING					
DRAWING NO.	TITLE								
REVISIONS				DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE		
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0003
NWP-2015-111				Page 13 of 30				SHEET 2 OF 3	
Joint Public Notice								Enclosure 2 OF 3	



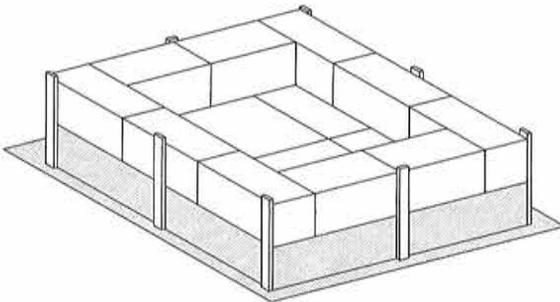
STEP 1

Arrange hay bales over filter fabric on level land tightly packed as shown to cover an area approximately 12' x 12'. Secure each haybale in place by driving rebar or a wooden stake through each of the hay bales.



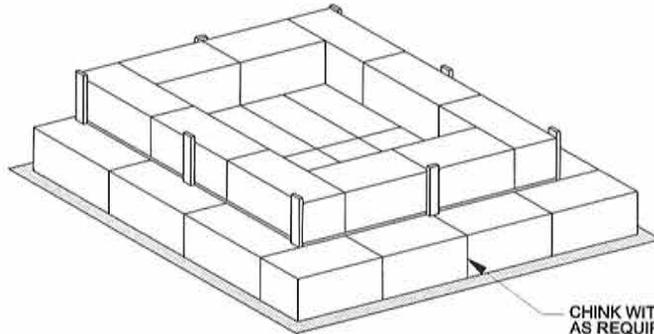
STEP 2

Install another layer of hay bales on the outer edge as shown.



STEP 3

Install filter fabric all around hay bale structure as shown.



STEP 4

Install another layer of hay bales on the outside of the filter fabric and secure in place by driving rebar or a wooden stake through each of the outer hay bales.

CHINK WITH HAY AS REQUIRED

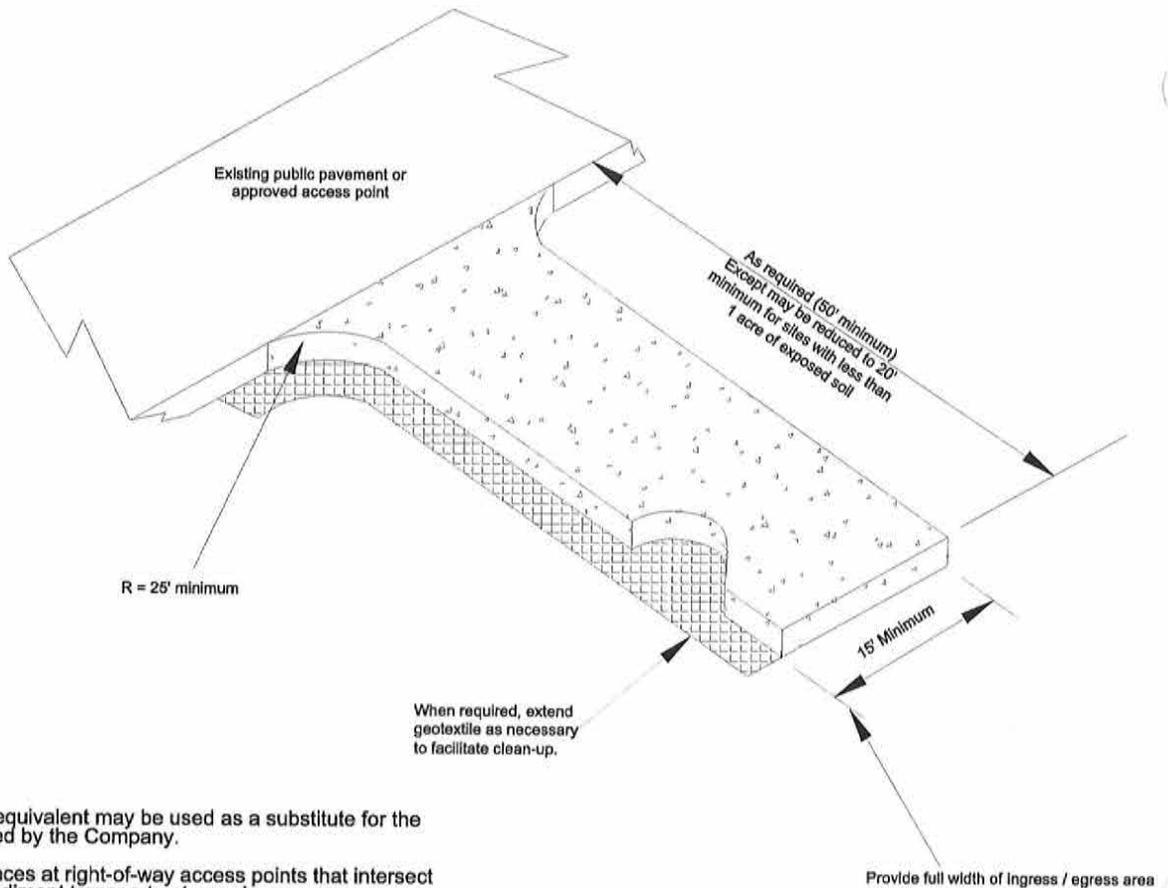
NOTES:

1. Where possible structure shall be placed on a level, well vegetated site such that water will flow away from structure and any work areas, waterbodies or wetlands.
2. This measure shall be removed upon completion of the project. removal is not contingent upon establishment of permanent vegetation. material from bales may be scattered on right-of-way.
3. Contractor shall use certified noxious weed free hay or straw for structure.

TRENCH DEWATERING

TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT				
DRAWING NO.	TITLE									
						TYPICAL TRENCH DEWATERING				
REVISIONS						DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE	
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:	
						APPROVED BY:		DATE:	DRAWING NUMBER: 2504.34-X-0003	SHEET 3 OF 3



Notes:

Equipment mats or their equivalent may be used as a substitute for the graveled apron if approved by the Company.

Install construction entrances at right-of-way access points that intersect paved roads to reduce sediment transport onto roadway.

Install culverts in road ditches as necessary.

Crushed stone access pads shall be placed on synthetic fabric in residential or active agricultural areas to facilitate stone removal. Use Synthetic Industries style 22TEX, Light Stabilization Fabric, or equivalent (3 oz/yd woven geotextile).

INSTALLATION: The area of the entrance should be cleared of all vegetation, roots and other objectionable material. The gravel shall be placed to the specified dimensions. Any drainage facilities required because of washing should be constructed according to specifications in the plan. If wash racks are used, they should be installed according to manufacturer's specifications.

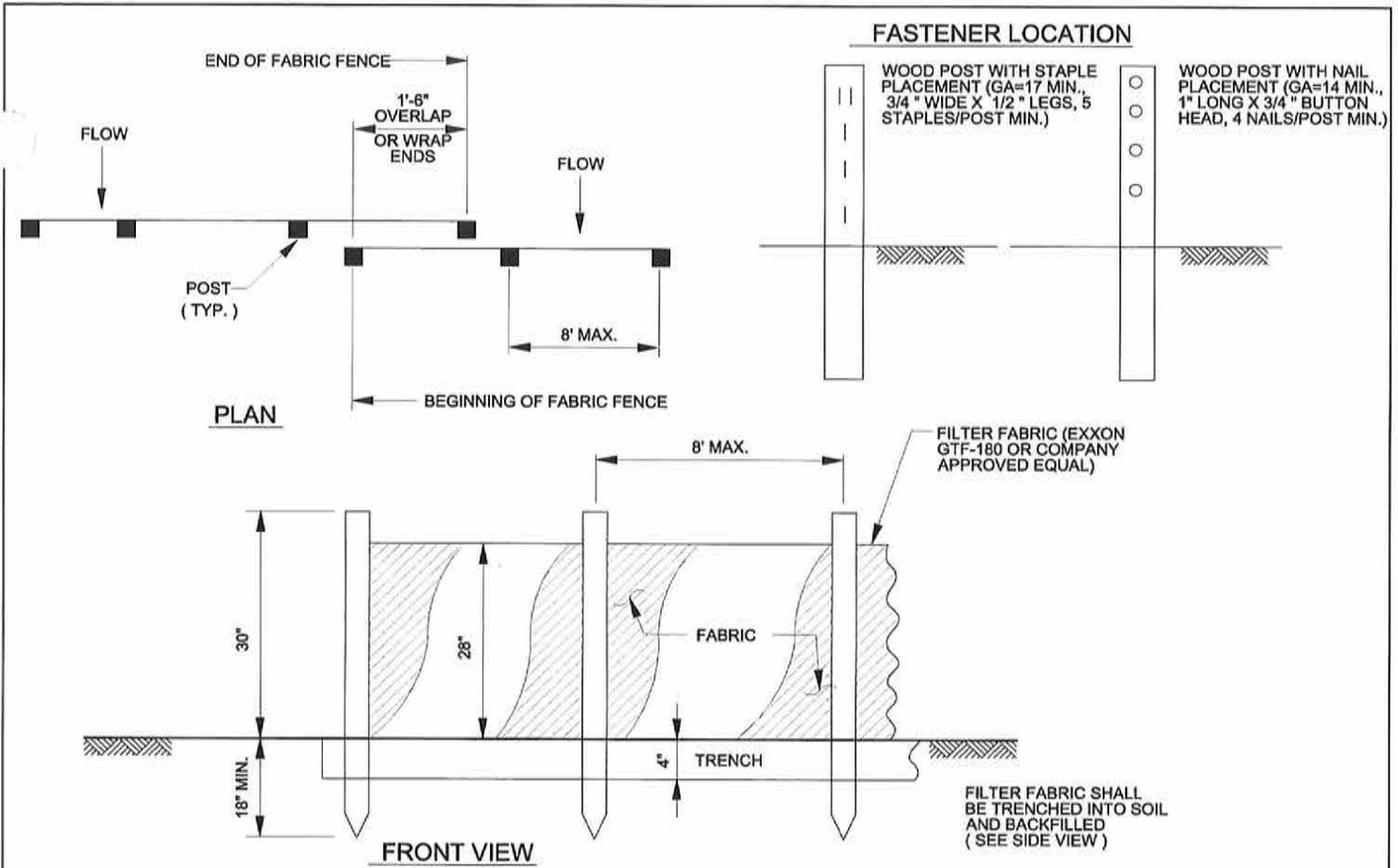
AGGREGATE: 2" to 6" crushed Ballast Rock.

ENTRANCE DIMENSIONS: The aggregate layer must be at least 6 inches thick. It must extend the full width of the vehicular ingress and egress area. The length of the entrance must be at least 50 feet.

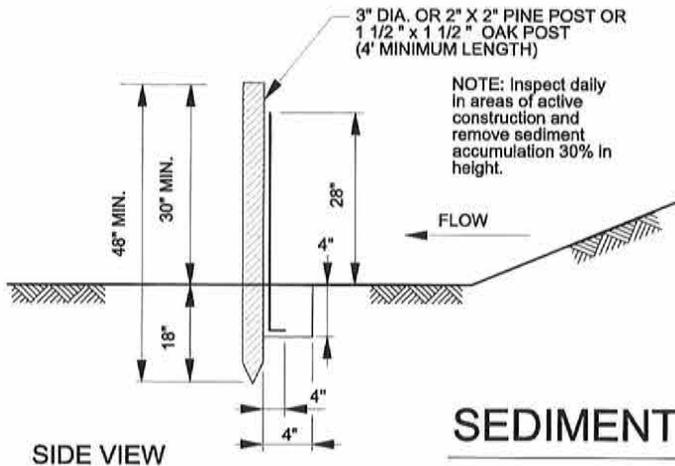
MAINTENANCE: The entrance shall be maintained in a condition which will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with 2-inch stone, as conditions demand, and repair and/or clean out any structures used to trap sediment. All materials spilled, dropped, washed or tracked from vehicles onto roadway or into storm drains must be removed immediately.

RESTORATION: Access pads will be removed as soon as possible following construction activities and the area restored to pre-construction conditions.

REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT			
DRAWING NO.	TITLE								
						TYPICAL CONSTRUCTION ACCESS ENTRANCE PAD			
REVISIONS						DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0004
NWP-2015-111						Page 15 of 30		SHEET 1	Enclosure 2 OF 1



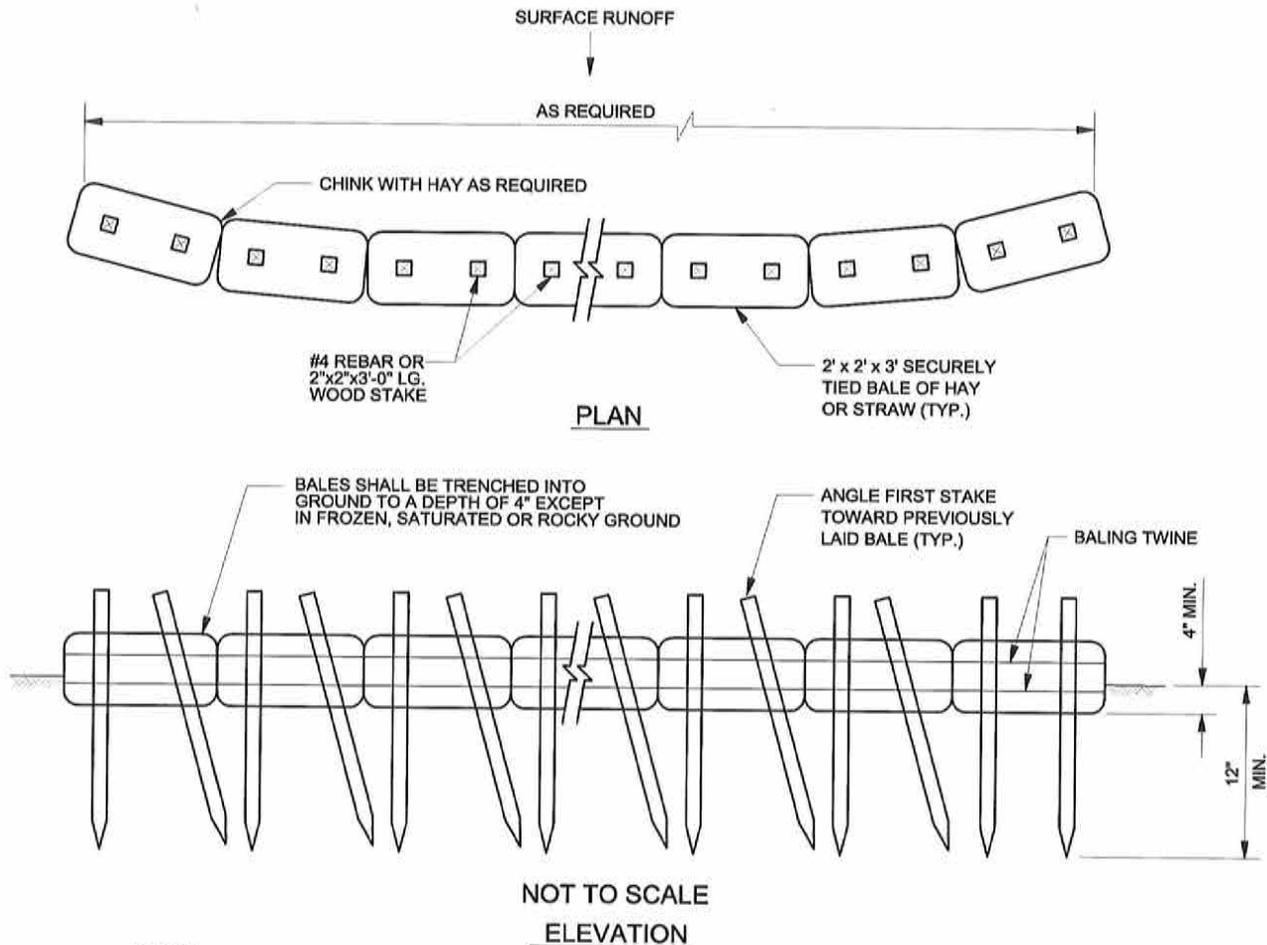
1. Install filter fabric after revegetation clearing and immediately after soil disturbance:
 - At appropriate locations to prevent siltation into waterbodies, wetlands, roads or other sensitive areas crossed by the construction right-of-way
 - To prevent stockpiled soil or spoil from leaving the work area.
2. Filter fabric shall be installed to filter sediment from surface runoff.
3. Installations shall be periodically checked according to ferc's plan and procedures, and if flow is obstructed, build-up of sediment shall be removed.
4. Filter fabric shall be left in place until permanent vegetative cover is established unless removal is authorized by company representative.
5. Filter fabric shall be replaced whenever it has deteriorated to such an extent that it reduces the effectiveness of the filter fabric.
6. Filter fabric shall be placed to follow (run parallel to) the contours.
7. On upslope installations, both ends of the filter fabric shall be turned and extended upslope.
8. Filter fabric shall be constructed of Exxon gtf-180 fabric or a similar fabric with a tensile strength at 20% (max.) elongation of 50 lb./linear inch or greater.
9. Area disturbed as a result of removing the filter fabric shall be restabilized by seeding in accordance with the revegetation plan.



SEDIMENT BARRIER - SILT FENCE OPTION

TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT			
DRAWING NO.	TITLE								
						TYPICAL SEDIMENT BARRIER - SILT FENCE FILTER FABRIC OPTION			
REVISIONS						DRAWN BY:	DATE:	ISSUED FOR BID:	SCALE:
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	NWP	9-02-2014	NONE
							CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0005
									SHEET 1 OF 2



NOTES:

1. bale barriers shall be placed to follow (run parallel to) the contours and shall not be located in areas of concentrated flow.
2. installations shall be checked after each 0.5 inches of rainfall and if flow is obstructed, the sediment shall be removed.
3. bale barriers shall be left in place until permanent vegetation cover is established. material from bale barriers may then be used as mulch and scattered over the surrounding area as directed by company representative.
4. on upslope installations, both ends of the bale barrier shall be turned and extended upslope.
5. area disturbed as a result of removing the bale barrier shall be restabilized by seeding according to the revegetation specifications.
6. contractor shall use certified noxious weed free hay or straw.
7. bales shall be placed such that ties or baling twine is not in contact with the ground.

SEDIMENT BARRIER - SILT FENCE OPTION

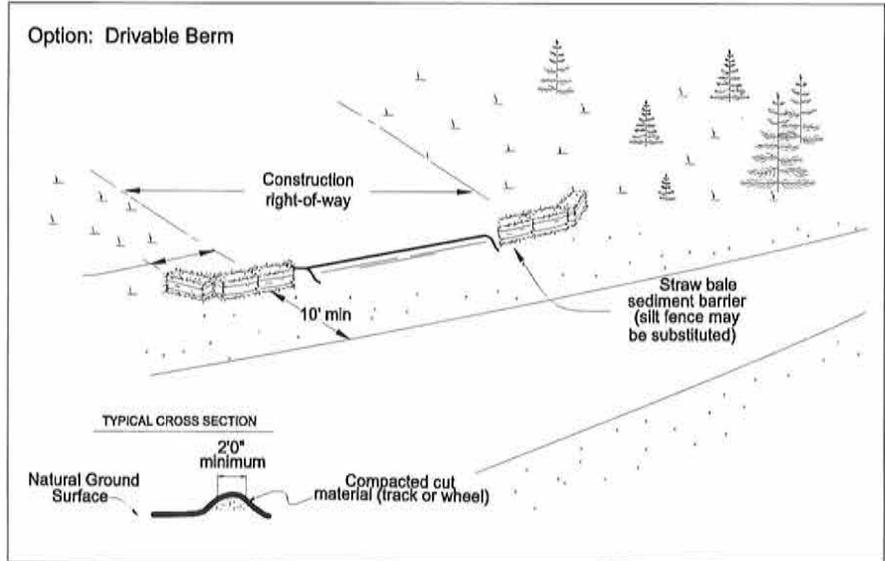
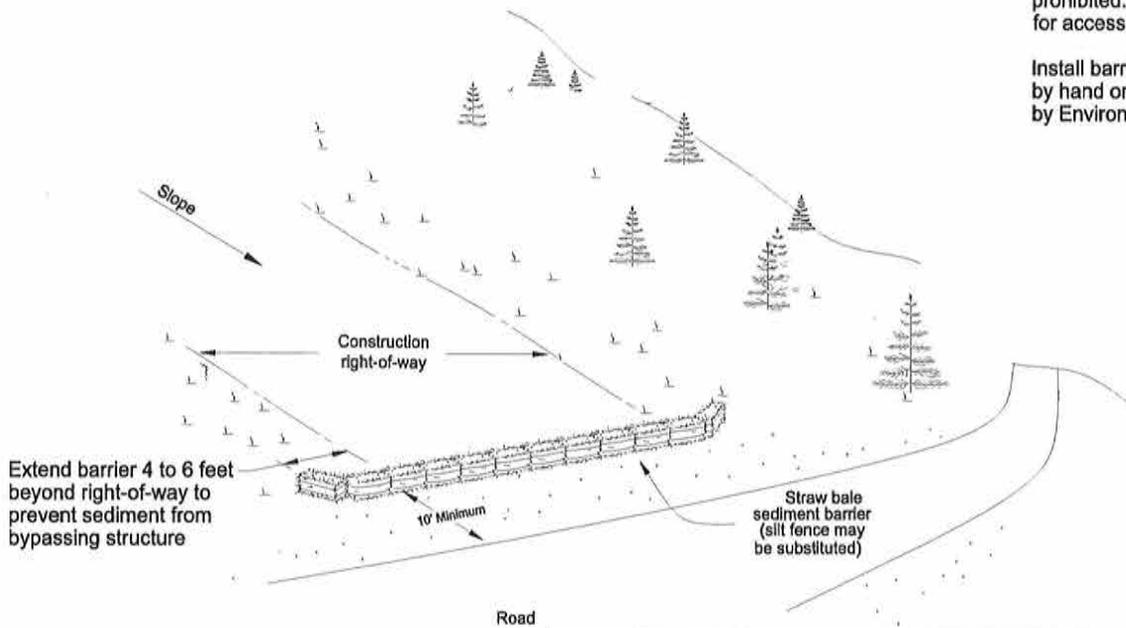
TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT				
DRAWING NO.	TITLE									
						TYPICAL SEDIMENT BARRIER - SILT FENCE STRAW BAIL OPTION				
REVISIONS						DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE	
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:	
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0005	SHEET 2
							Page 17 of 30		Enclosure 2 of 2	

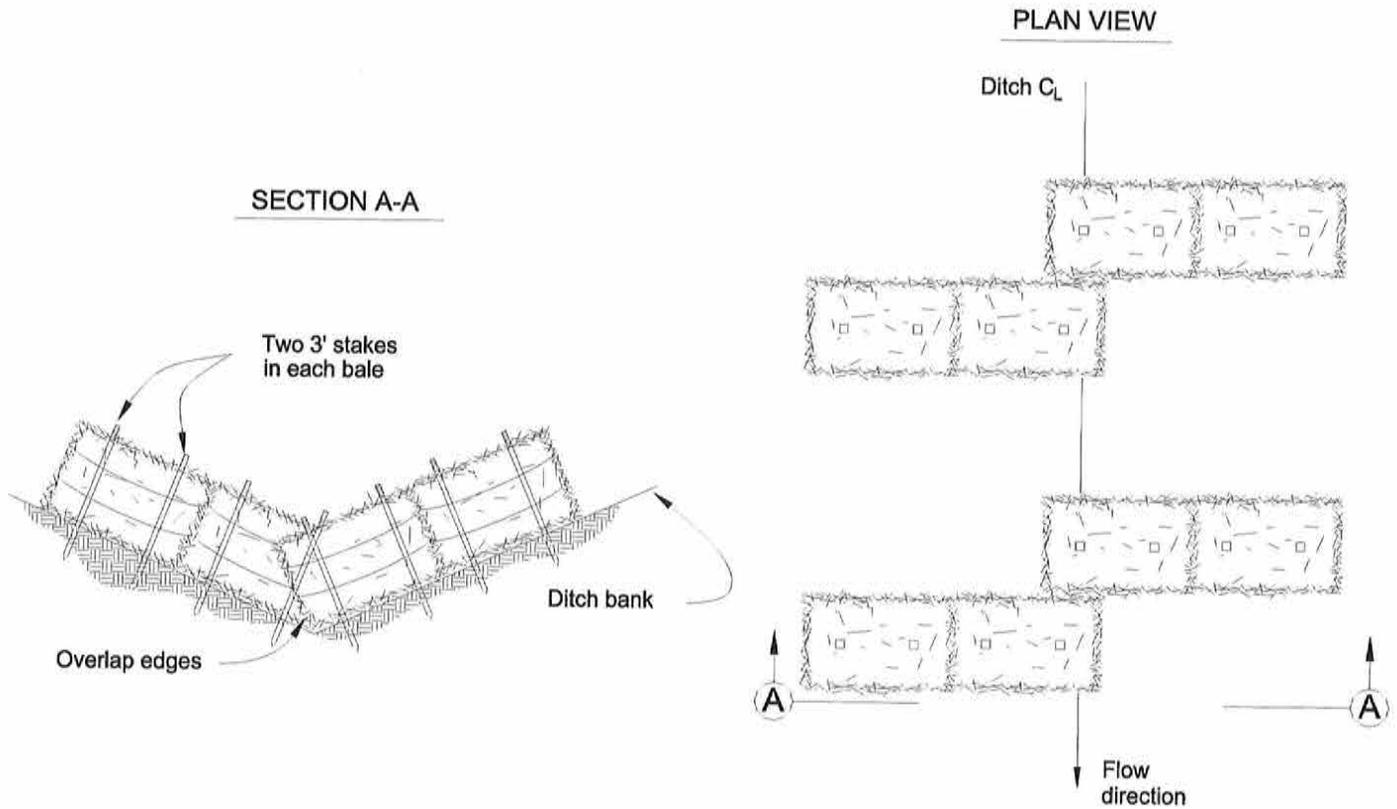
Notes:

Driving around sediment barriers is prohibited. Remove and replace barrier for access to right-of-way.

Install barriers off the right-of-way by hand only at location approved by Environmental Inspector.



REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT						
DRAWING NO.	TITLE											
						TEMPORARY SEDIMENT BARRIERS DRIVEABLE BERMS ADJACENT TO ROAD CROSSINGS			SHEET 1 OF 1			
REVISIONS						DRAWN BY:	NWP	DATE:	9-02-2014	ISSUED FOR BID:	SCALE:	NONE
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:			
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0006			



Notes:

Place straw bale sediment barriers in small intermittent drainages or road ditches that may convey sediment laden runoff from the right-of-way during storm events.

Drive stakes a minimum of 12 inches into the ground.

Use wood stakes whenever possible. Steel rebar may be used when soil is frozen or rocky.

Silt fence fabric may be used.

Sediment control structures can be placed off the construction right-of-way by hand if the location has been approved by the Environmental Inspector.

REFERENCE DRAWINGS										
DRAWING NO.		TITLE								
NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT SEDIMENT CONTROL IN DITCHES AND SWALES										
REVISIONS										
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:	
							DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0007	SHEET 1
							Page 19 of 30		Enclosure 2 ^F 1	

SEGREGATED
TOPSOIL - SEE NOTES 1 & 8
(TRENCH LINE ONLY)

SILT FENCE

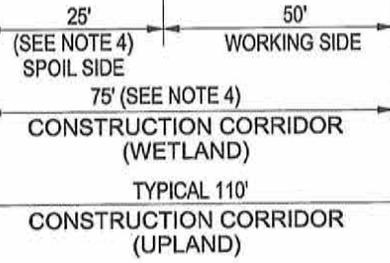
PIPELINE

TRENCH SPOIL

SILT FENCE
(SEE 2504.34-X-0005 SHT 1)

TIMBER MATS

STRAW BALE SEDIMENT BARRIERS
(SEE 2504.34-X-0005 SHT 2)

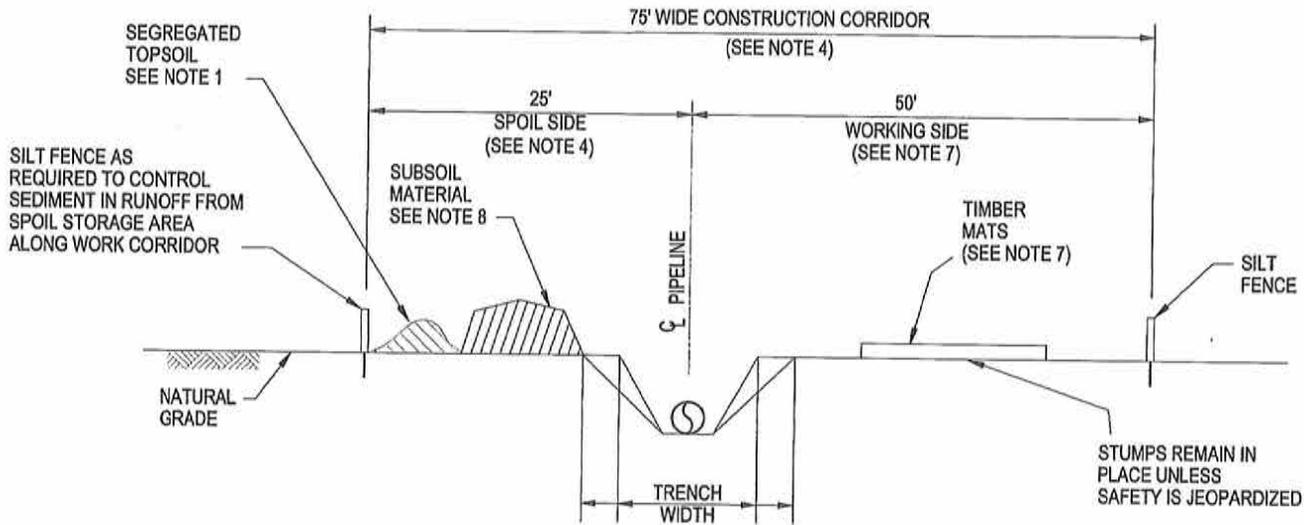


NOTES:

1. The top one (1) foot of topsoil shall be segregated from the trenchline except in areas where standing water or saturated soils are present.
2. The vegetation located within the proposed limits of disturbance shall be cut off at ground level leaving the existing root systems
3. Pulling of tree stumps and grading activities shall be limited to the area directly over the trenchline unless safety conditions require the removal of tree stumps from under the working side of the work corridor.
4. Construction corridor through wetlands will be 75 feet wide unless a variance is granted. Configuration of right-of-way may vary.

PLAN VIEW

REFERENCE DRAWINGS				NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT					
DRAWING NO.	TITLE								
REVISIONS				DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE		
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0008
								SHEET 1 OF 2	

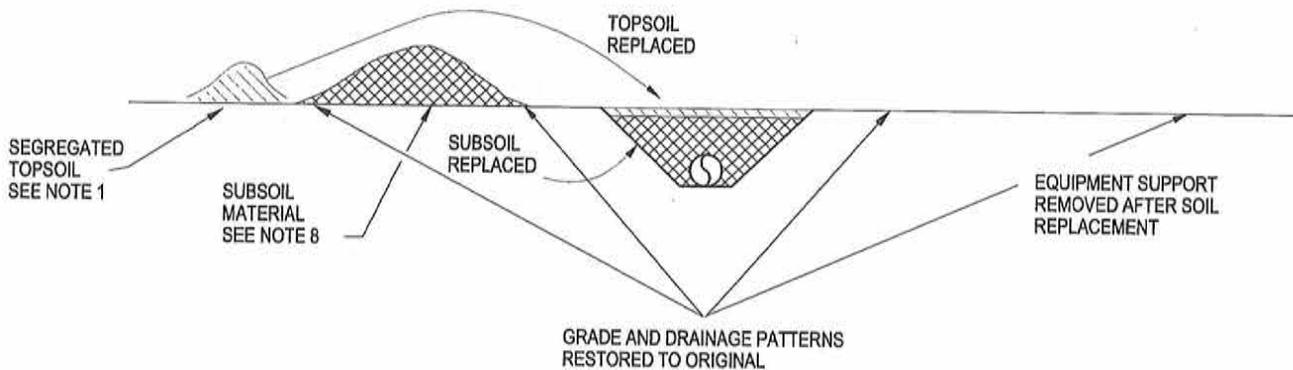


TRENCH WIDTH VARIES DEPENDING ON SOILS ENCOUNTERED DURING CONSTRUCTION

CROSS SECTION

NOTES Continued:

5. Silt fence or straw bales will be used where appropriate to prevent siltation into water bodies or wetlands.
6. Silt fences or straw bales will also be used to prevent stockpiled soil or spoil from leaving the construction right-of-way or workspaces.
7. Timber mats may be used over spoil storage where standing water or saturated soils are present.
8. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of topsoil and subsoil in wetlands, use low-ground weight equipment, or operate normal equipment on timber riprap, prefabricated equipment mats or terra mats.



WETLAND RESTORATION

REFERENCE DRAWINGS

DRAWING NO.	TITLE

NORTHWEST PIPELINE LLC
KALAMA LATERAL PROJECT

CROSSING DETAIL FOR WETLANDS

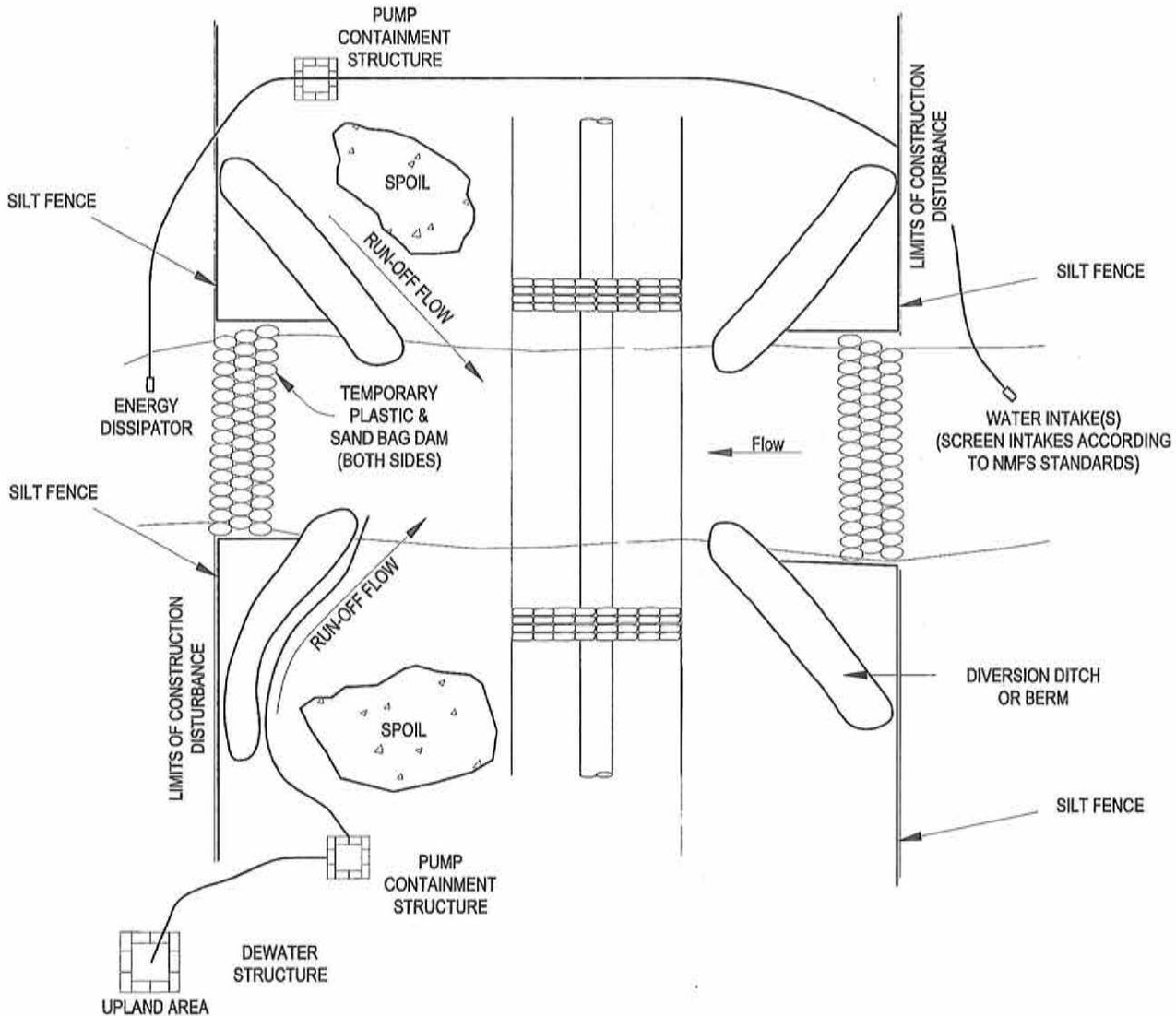


REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.

DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE
CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:	
APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0008	SHEET 2 OF 2

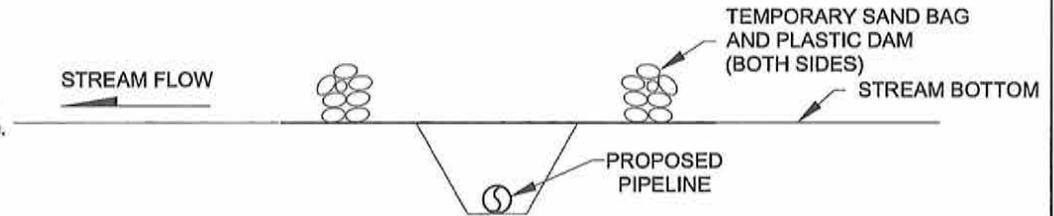
CONFIGURATION THROUGH WATERBODIES WITH ASSOCIATED WETLANDS IS VARIABLE BUT WILL NOT EXCEED 75 FEET IN WIDTH UNLESS A VARIANCE IS GRANTED



PLAN VIEW OF DAM & PUMP CROSSING METHOD

NOTES:

1. Trench width will vary due to soil conditions which are not known until actual construction takes place.
2. Extra workspace will be located 50 feet from edge of waterbody unless a variance is granted, for extra workspace locations and dimensions see environmental alignment sheets.
3. Temporary erosion control measures must be replaced at the end of each working day.



CROSS-SECTION OF DAM & PUMP CROSSING METHOD

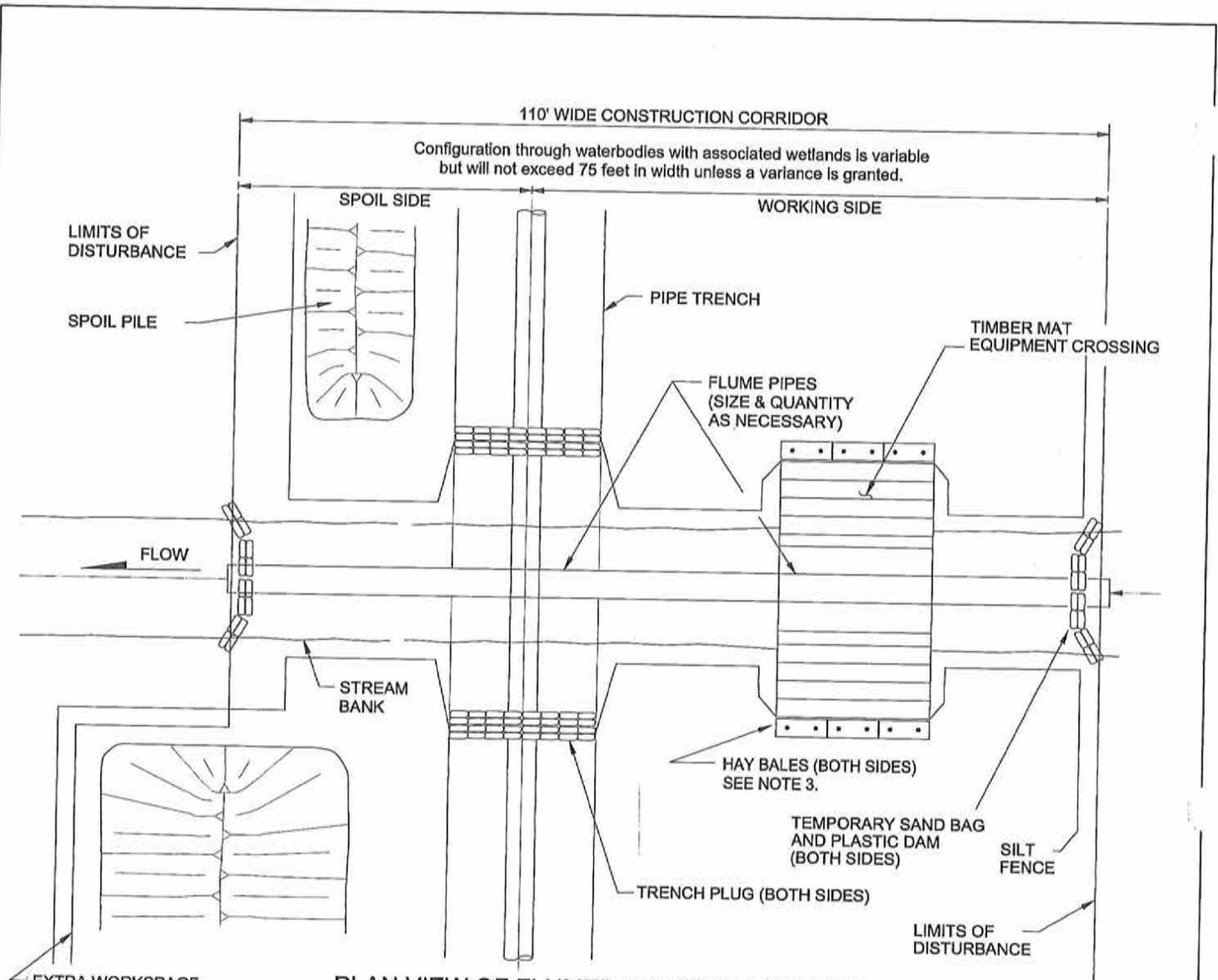
REFERENCE DRAWINGS	
DRAWING NO.	TITLE

NORTHWEST PIPELINE LLC
KALAMA LATERAL PROJECT

WATERBODY CROSSING DETAIL
DAM & PUMP CROSSING METHOD

REVISIONS					
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK. APP.

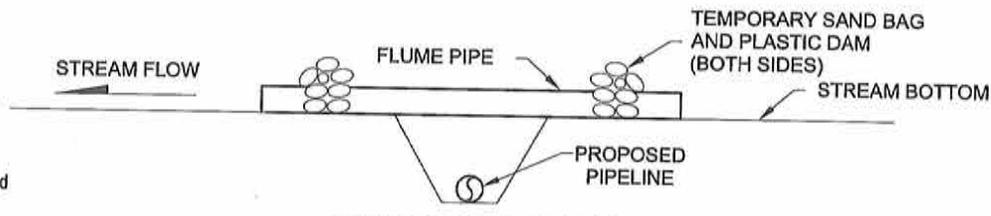
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CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:	
APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0009	SHEET 1 OF 1



PLAN VIEW OF FLUMED CROSSING METHOD

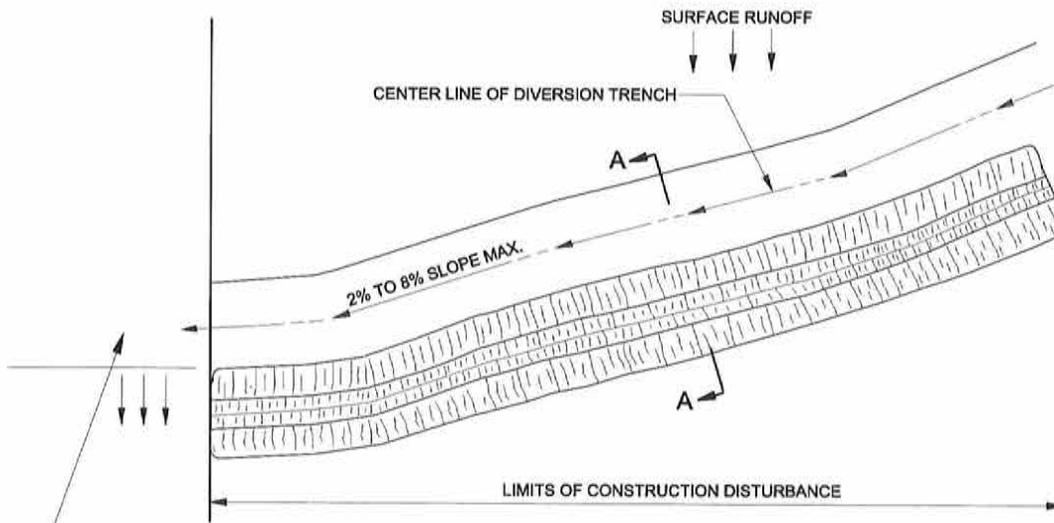
NOTES:

1. Trench width will vary due to soil conditions which are not known until actual construction takes place.
2. Extra workspace will be located 50 feet from edge of waterbody unless a variance is granted or the adjacent vegetation is actively cultivated as a rotated croplands. For extra workspace locations and dimensions see environmental alignment sheets.
3. Temporary erosion control measures must be replaced at the end of each working day.



CROSS-SECTION OF FLUMED CROSSING METHOD

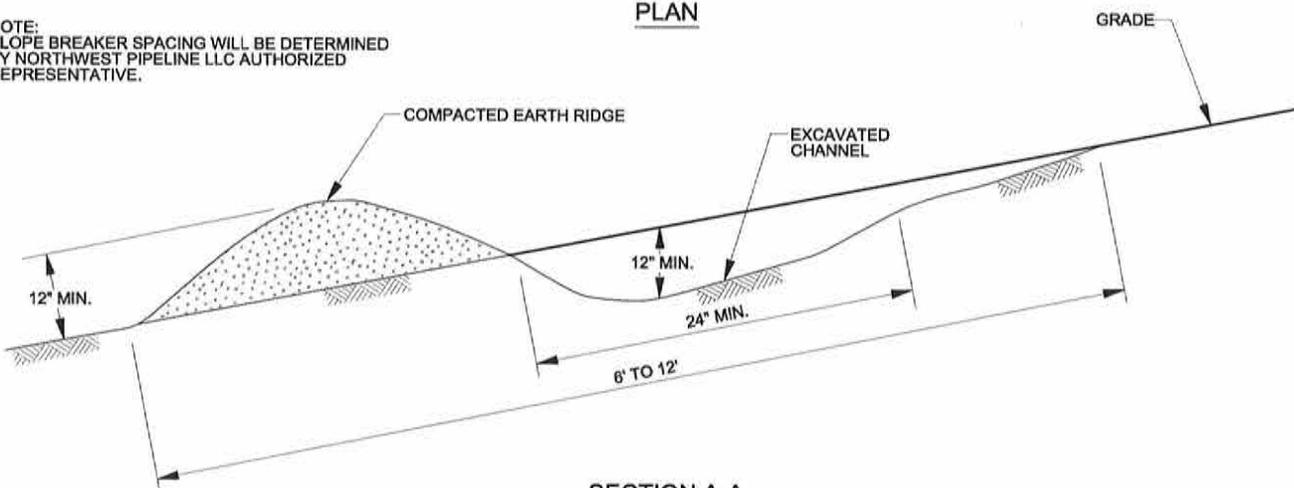
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REVISIONS						DRAWN BY:	DATE:	ISSUED FOR BID:	SCALE:		
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	NWP	9-02-2014		NONE	
							CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:		
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0010		SHEET 1
											OF 1



DIVERSION TRENCH OUTLET SHALL BE PLACED WHERE RUNOFF WILL BE RELEASED ONTO STABLE WELL-VEGETATED GROUND. INSTALL GEO-JUTE AT OUTLET AS AN ENERGY-DISSIPATOR AT THE END OF THE BREAKER IF NEEDED.

NOTE:
SLOPE BREAKER SPACING WILL BE DETERMINED BY NORTHWEST PIPELINE LLC AUTHORIZED REPRESENTATIVE.

PLAN



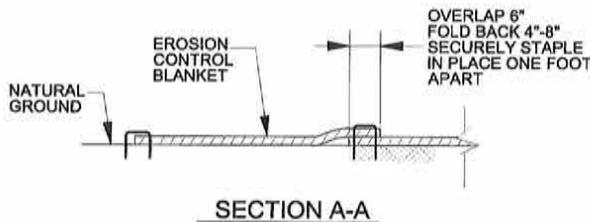
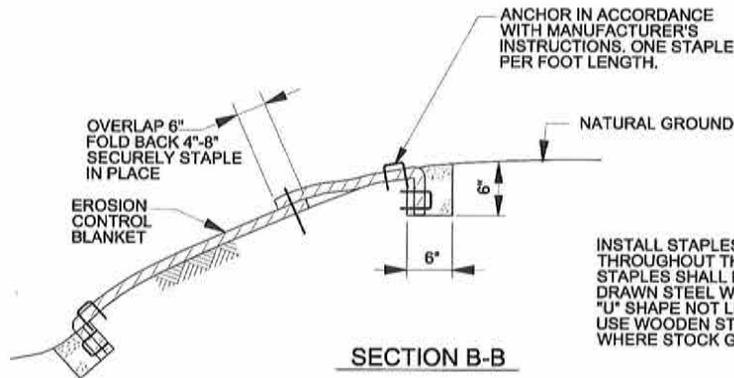
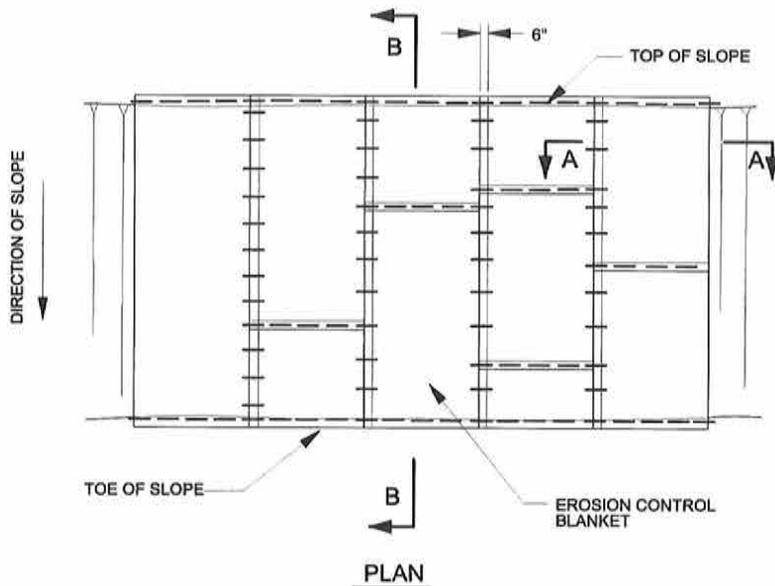
NOTE:
SLOPE BREAKERS MAY EXTEND SLIGHTLY (ABOUT 4 FEET) BEYOND THE EDGE OF THE CONSTRUCTION RIGHT-OF-WAY TO EFFECTIVELY DRAIN WATER OFF THE DISTURBED AREA.

SECTION A-A

TEMPORARY AND PERMANENT SLOPE BREAKERS

TEMPORARY & PERMANENT EROSION CONTROL MEASURE

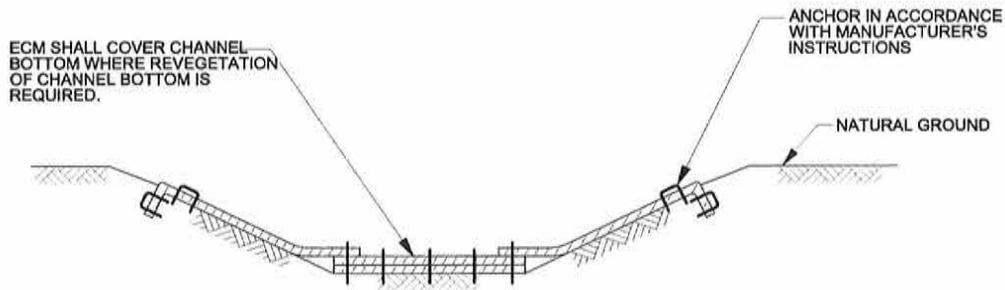
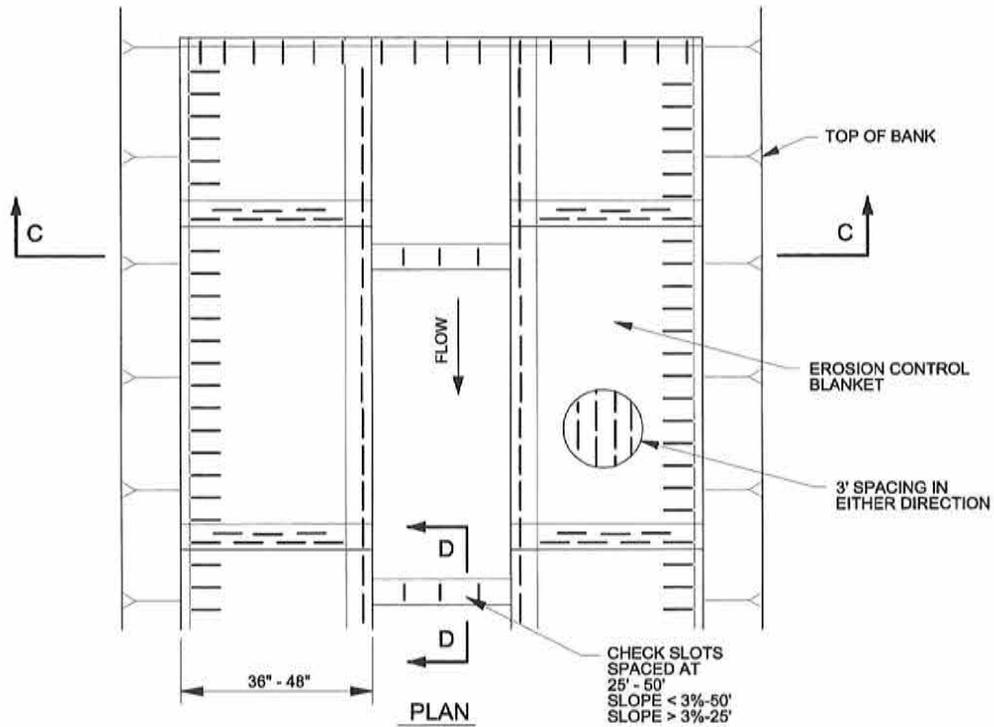
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DRAWING NO.	TITLE					TYPICAL TEMPORARY AND PERMANENT SLOPE BREAKERS			
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NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0011
						Page 24 of 30			SHEET 1 OF 1



EMBANKMENT INSTALLATION

**EROSION CONTROL MATTING
PERMANENT EROSION CONTROL MEASURE**

REFERENCE DRAWINGS				NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT					
DRAWING NO.	TITLE			TYPICAL EROSION CONTROL MATTING					
REVISIONS				DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE		
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0012
NWP-2015-111				Page 25 of 30				SHEET 1 Enclosure 2 OF 4	

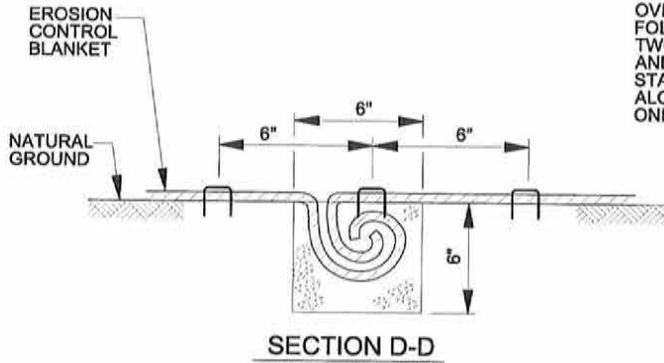


SECTION C-C

CHANNEL INSTALLATION

**EROSION CONTROL MATTING
PERMANENT EROSION CONTROL MEASURE**

REFERENCE DRAWINGS				NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT					
DRAWING NO.	TITLE								
REVISIONS				DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE		
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0012
NWP-2015-111				Page 26 of 30				SHEET 2 OF 4	
Joint Public Notice				Enclosure 2 OF 4					



OVERLAP 6"
 FOLD BACK 4"-8"
 TWO-THREE TIMES
 AND SECURELY
 STAPLE IN PLACE
 ALONG CREEK SLOT
 ONE FOOT APART

MATERIAL
NORTH AMERICAN GREEN SC150 (OR EQUIVALENT)

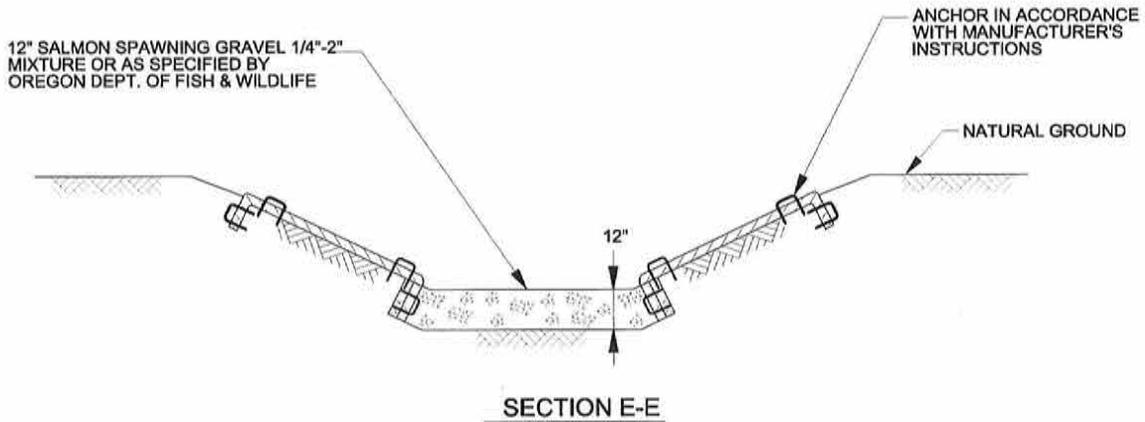
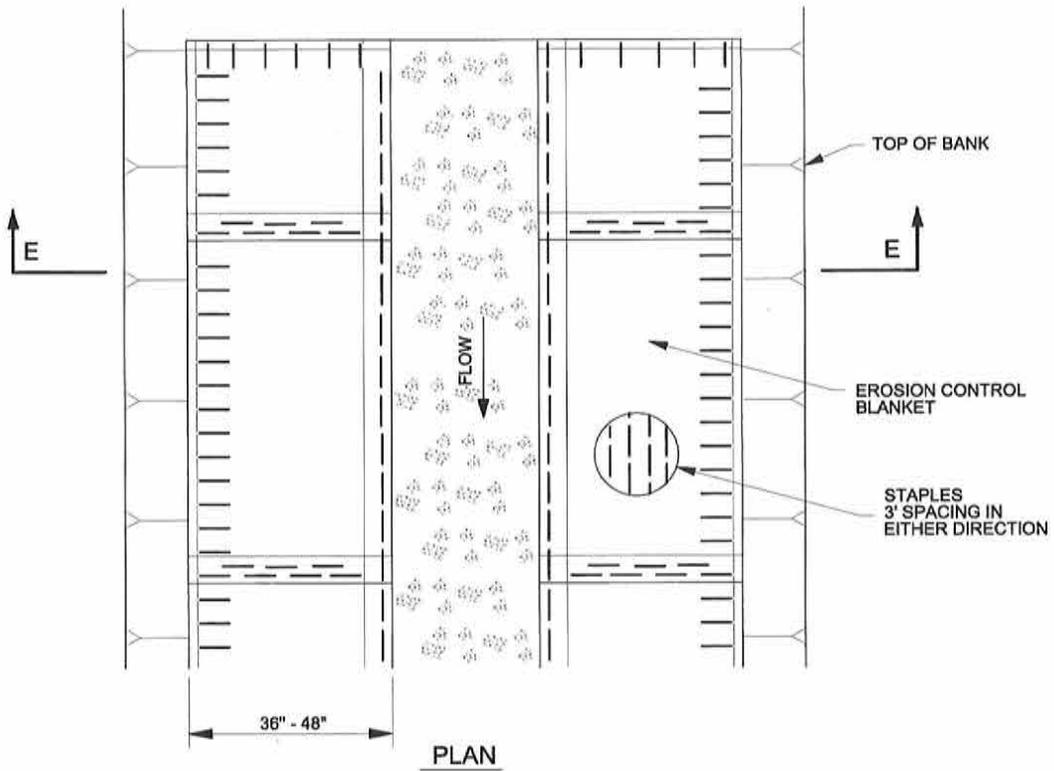
NOTES:

1. EROSION CONTROL BLANKETS SHALL EXTEND COMPLETELY ACROSS DISTURBED AREA TO PROTECT ERODIBLE SURFACES. THE SOIL SHALL BE PROPERLY PREPARED, SEEDED AND MULCHED PRIOR TO INSTALLATION.
2. INSTALL EROSION CONTROL BLANKETS ON FRESHLY GRADED EMBANKMENTS ON SLOPES IN EXCESS OF 3:1 (H:V) TO SUPPORT VEGETATION OR AS DIRECTED TO DO SO BY A COMPANY REPRESENTATIVE.
3. INSTALL BLANKETS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. BLANKET SHALL BE LOOSELY INSTALLED AND TAMPED OR ROLLED IN PLACE AFTER INSTALLATION. STAPLES SHALL BE DRIVEN FLUSH WITH THE GROUND.

EROSION CONTROL MATTING

PERMANENT EROSION CONTROL MEASURE

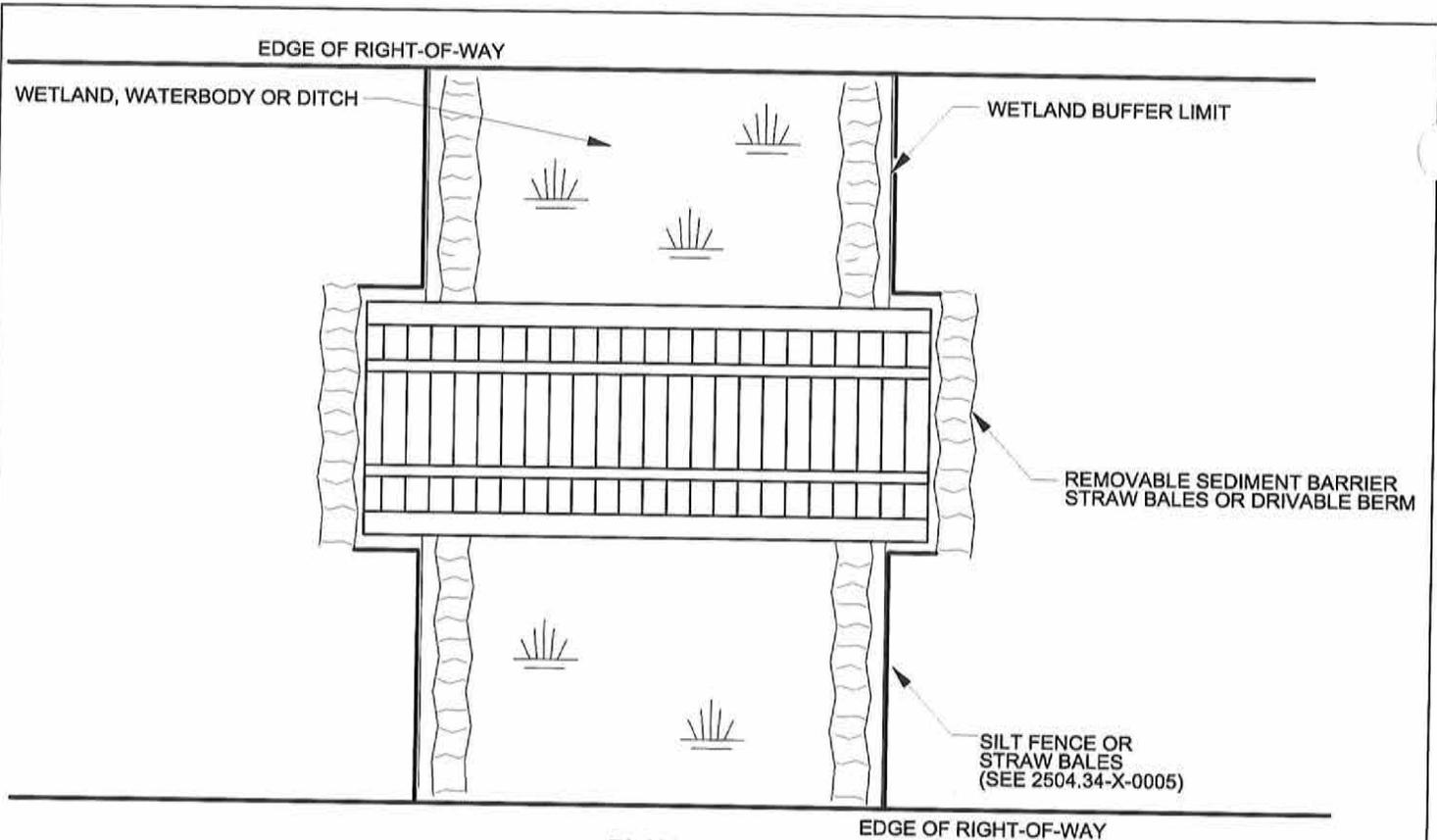
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REVISIONS				DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE				
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:		
NWP-2015-111								APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0012	SHEET 3
								Page 27 of 30		Enclosure 2	OF 4



SALMON STREAM RESTORATION ALTERNATIVE

**EROSION CONTROL MATTING
PERMANENT EROSION CONTROL MEASURE**

REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT			
DRAWING NO.	TITLE					TYPICAL EROSION CONTROL MATTING			
REVISIONS						DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
							APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0012
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NWP-2015-111 Joint Public Notice						Enclosure 2			



PLAN



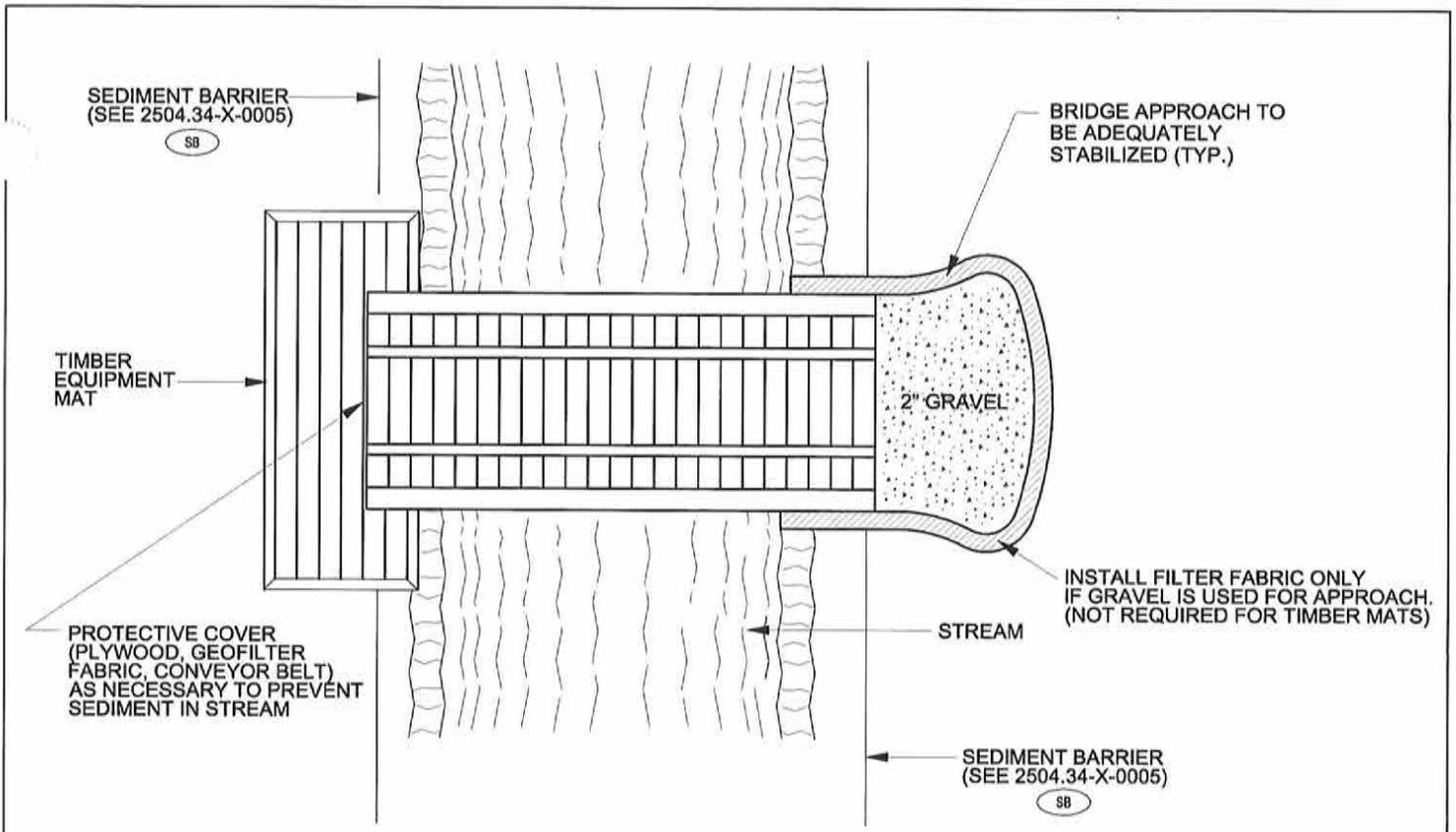
PROFILE

NOTES:

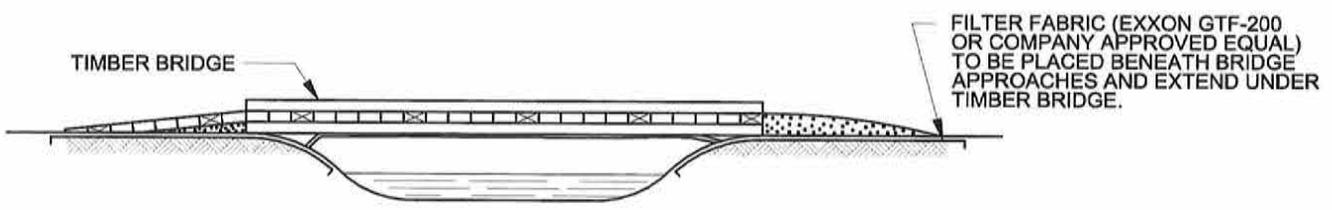
1. Periodically check installation and remove build-up of sediment or debris.
2. Materials placed in wetlands shall be completely removed during final clean-up. removal of this structure is not contingent upon establishment of permanent vegetation.
3. Extend timber mats to equipment crossing at waterbody. continue equipment mats through the wetland and waterbody area.
4. Use additional timber mat layers to raise crossing above grade where poor soil conditions exist.

PORTABLE BRIDGE CROSSING TEMPORARY EROSION CONTROL MEASURE

REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT			
DRAWING NO.	TITLE					TYPICAL PORTABLE BRIDGE CROSSING			
									
REVISIONS						DRAWN BY: NWP	DATE: 9-02-2014	ISSUED FOR BID:	SCALE: NONE
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:
NWP-2015-111						APPROVED BY:		DATE:	
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PLAN



PROFILE

NOTES:

1. Timber bridges shall be adequately anchored at one end.
2. Periodically check bridge installation and remove build-up of sediment or debris on bridge.
3. Bridge approaches shall be either coarse aggregate or timber equipment mats.
4. Materials placed along stream channel shall be completely removed during final clean-up. removal of this structure is not contingent upon establishment of permanent vegetation.
5. Culverts shall be used to support the timber bridge to prevent settlement of the bridge if necessary. the timber bridge shall remain above the water surface elevation at all times.
6. Contractor may use manufactured portable bridges or rail car bridges as substitutes for the measures shown, if approved by company representative.
7. Support culverts shall not restrict flow and shall be designed to withstand and pass the highest flow that would occur while the bridge is in place.
8. Sediment and debris shall not enter waterbody.

REFERENCE DRAWINGS						NORTHWEST PIPELINE LLC KALAMA LATERAL PROJECT				
DRAWING NO.	TITLE									
REVISIONS						DRAWN BY:	DATE:	ISSUED FOR BID:	SCALE:	
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	CHECKED BY:	DATE:	ISSUED FOR CONSTRUCTION:	
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						APPROVED BY:	DATE:	DRAWING NUMBER: 2504.34-X-0013		SHEET 2
										OF 2