ATTACHMENTS

The following section of attachments contains figures, photographs, worksheets, and drawings. There are six “upstream” plans involving the delivery of various amounts of Columbia River water to some or all of the potential exchange participants. Plans 1 through 4 include options of the potential mainline delivery systems extending from the Roza Canal at MP 226. Plans 5 and 6 do not have options.

In the caption boxes of Attachment C, “Aerial Photographs,” the term “option” was used rather than “plan.”

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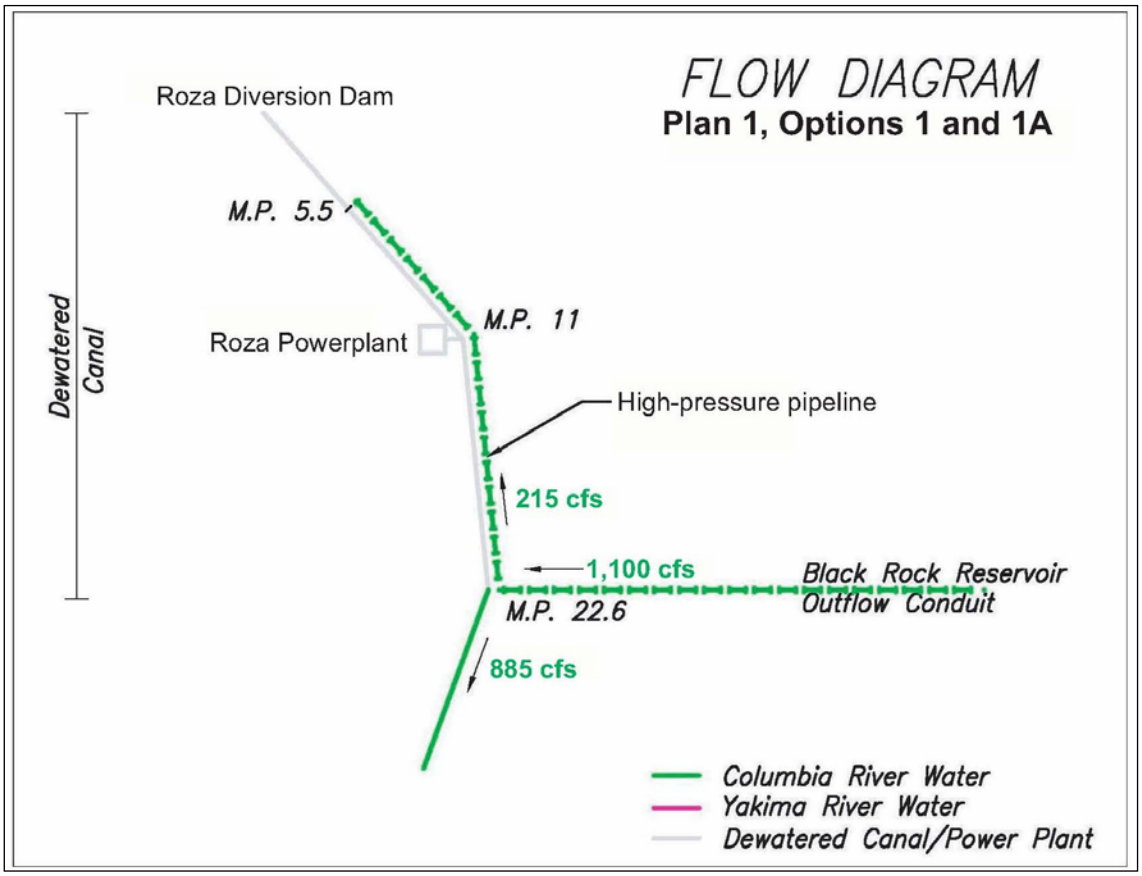
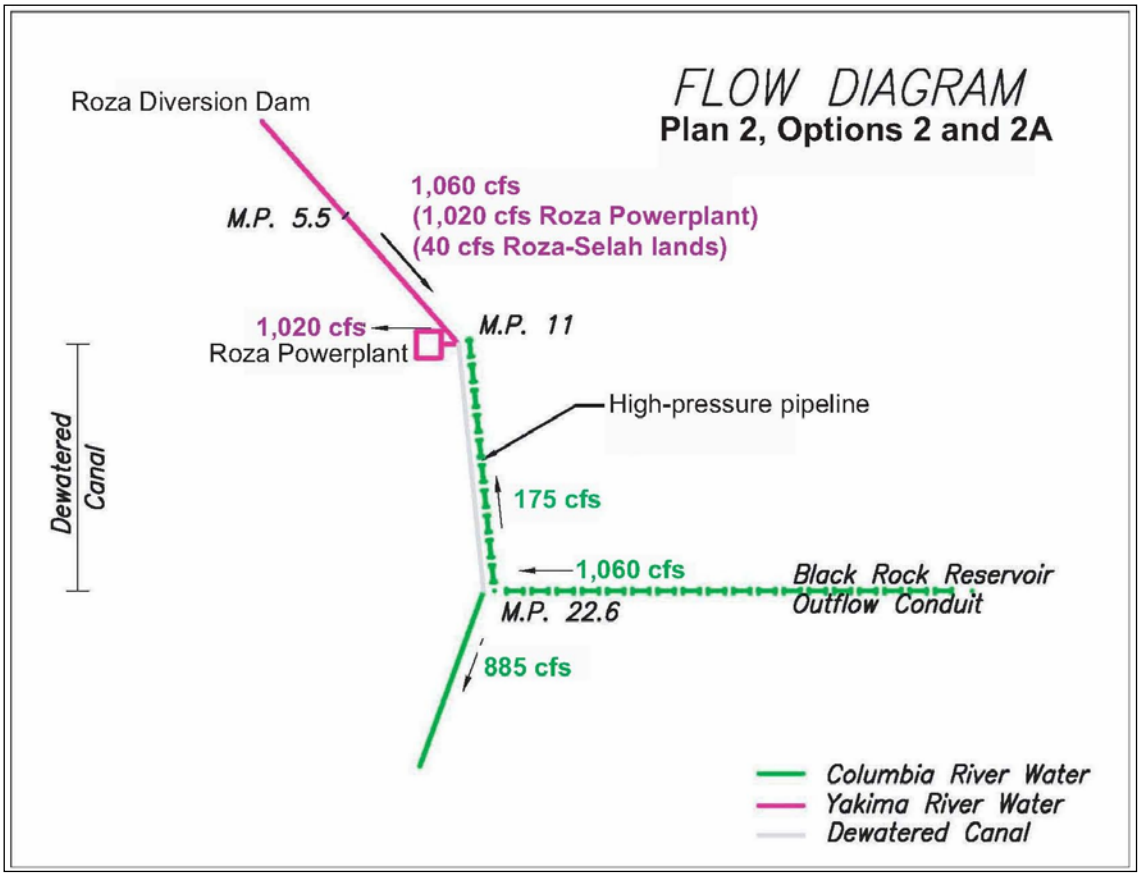
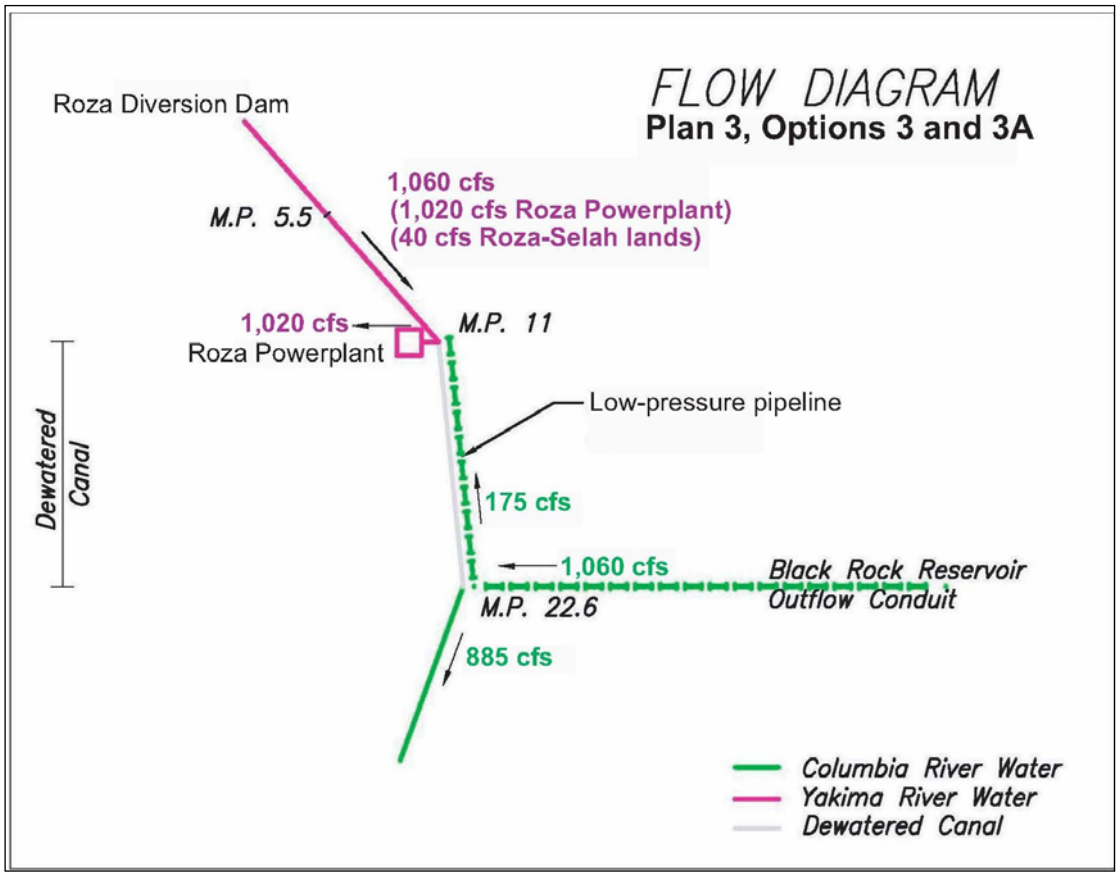
ATTACHMENT F. REFERENCE DRAWINGS

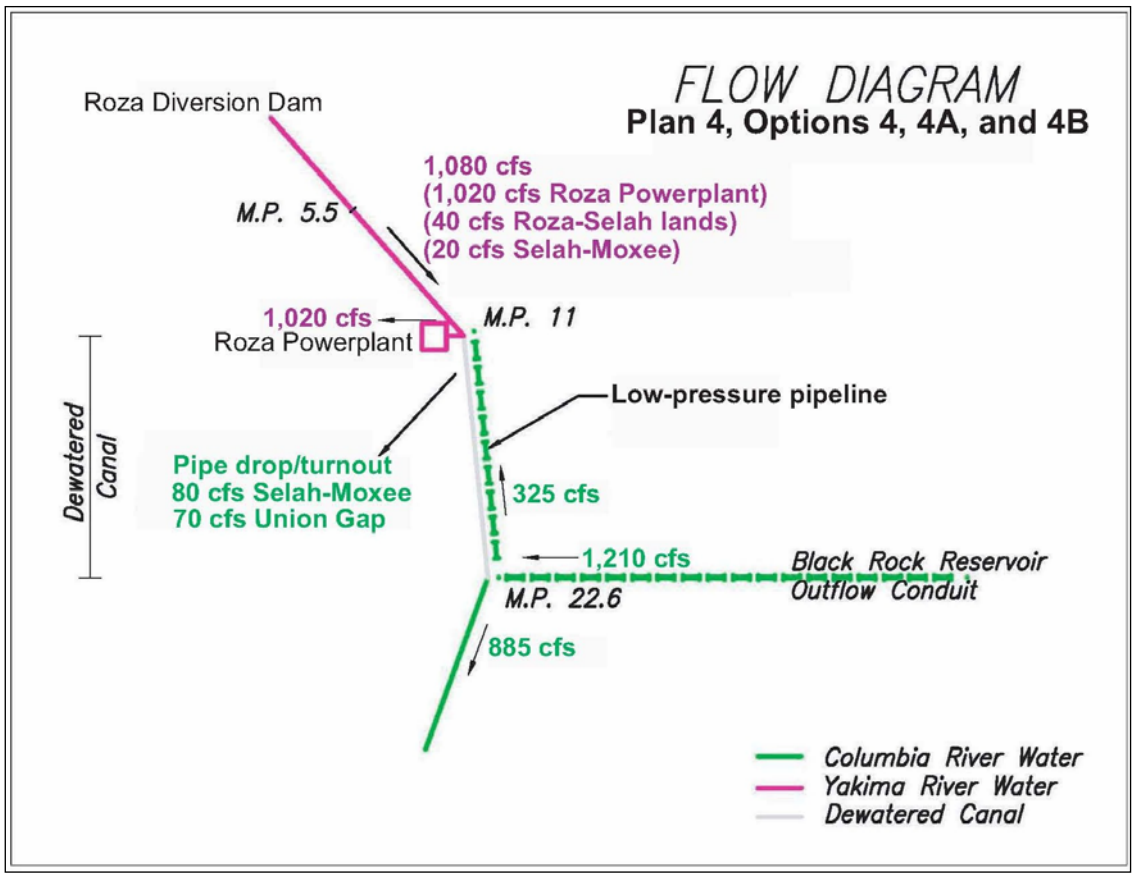
ATTACHMENT A.

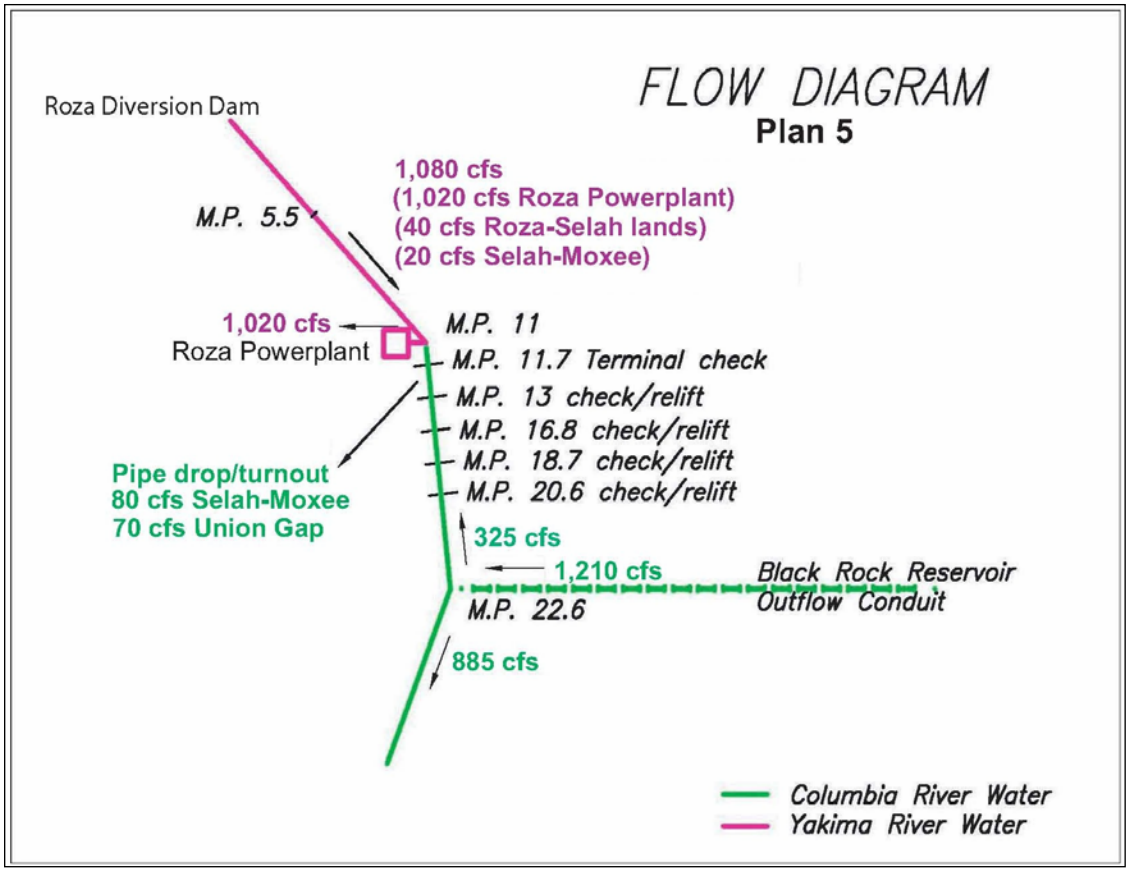
FLOW DIAGRAMS, PLANS 1-6

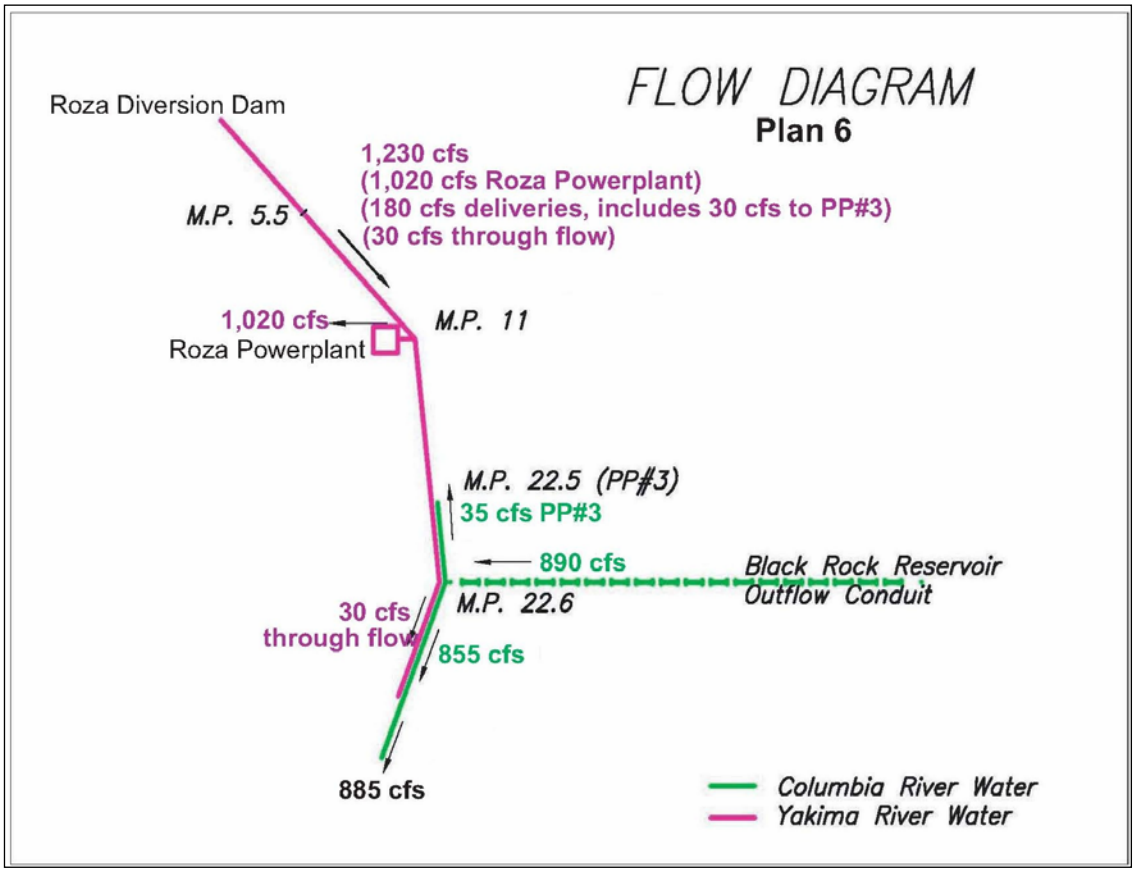

FLOW DIAGRAM
Plan 1, Options 1 and 1A
Roza Diversion Dam
M.P. 5.5
M.P. 11
Roza Powerplant
Dewatered Canal
High-pressure pipeline
215 cfs
1,100 cfs
Black Rock Reservoir Outflow Conduit
M.P. 22.6
885 cfs
Columbia River Water
Yakima River Water
Dewatered Canal/Power Plant


FLOW DIAGRAM
Plan 2, Options 2 and 2A
Roza Diversion Dam
1,060 cfs
(1,020 cfs Roza Powerplant)
(40 cfs Roza-Selah lands)
M.P. 5.5
1,020 cfs
M.P. 11
Roza Powerplant
Dewatered Canal
High-pressure pipeline
175 cfs
1,060 cfs
Black Rock Reservoir Outflow Conduit
M.P. 22.6
885 cfs
Columbia River Water
Yakima River Water
Dewatered Canal


FLOW DIAGRAM
Plan 3, Options 3 and 3A
Roza Diversion Dam
M.P. 5.5
1,060 cfs
(1,020 cfs Roza Powerplant)
(40 cfs Roza-Selah lands)
1,020 cfs
Roza Powerplant
M.P. 11
Low-pressure pipeline
Dewatered Canal
175 cfs
1,060 cfs
Black Rock Reservoir Outflow Conduit
M.P. 22.6
885 cfs
Columbia River Water
Yakima River Water
Dewatered Canal

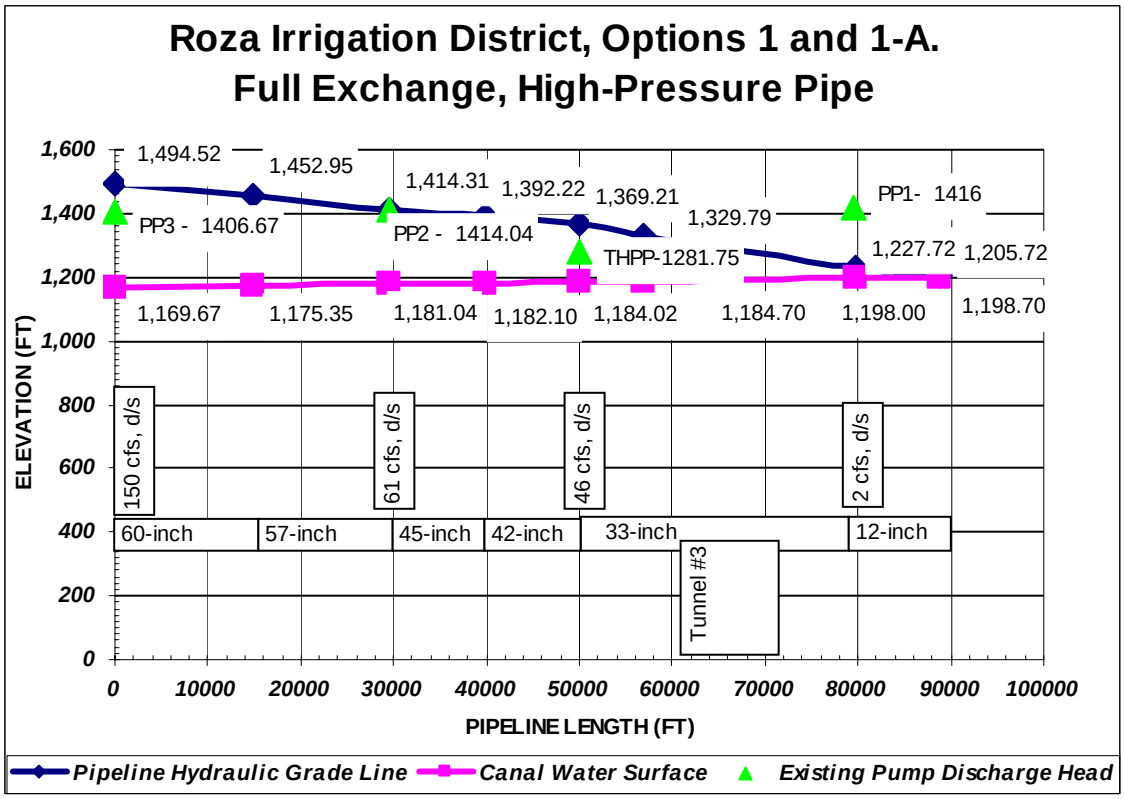

FLOW DIAGRAM
Plan 4, Options 4, 4A, and 4B
Roza Diversion Dam
M.P. 5.5
1,080 cfs
(1,020 cfs Roza Powerplant)
(40 cfs Roza-Selah lands)
(20 cfs Selah-Moxee)
1,020 cfs
Roza Powerplant
M.P. 11
Low-pressure pipeline
Dewatered Canal
Pipe drop/turnout
80 cfs Selah-Moxee
70 cfs Union Gap
325 cfs
1,210 cfs
Black Rock Reservoir Outflow Conduit
M.P. 22.6
885 cfs
Columbia River Water
Yakima River Water
Dewatered Canal

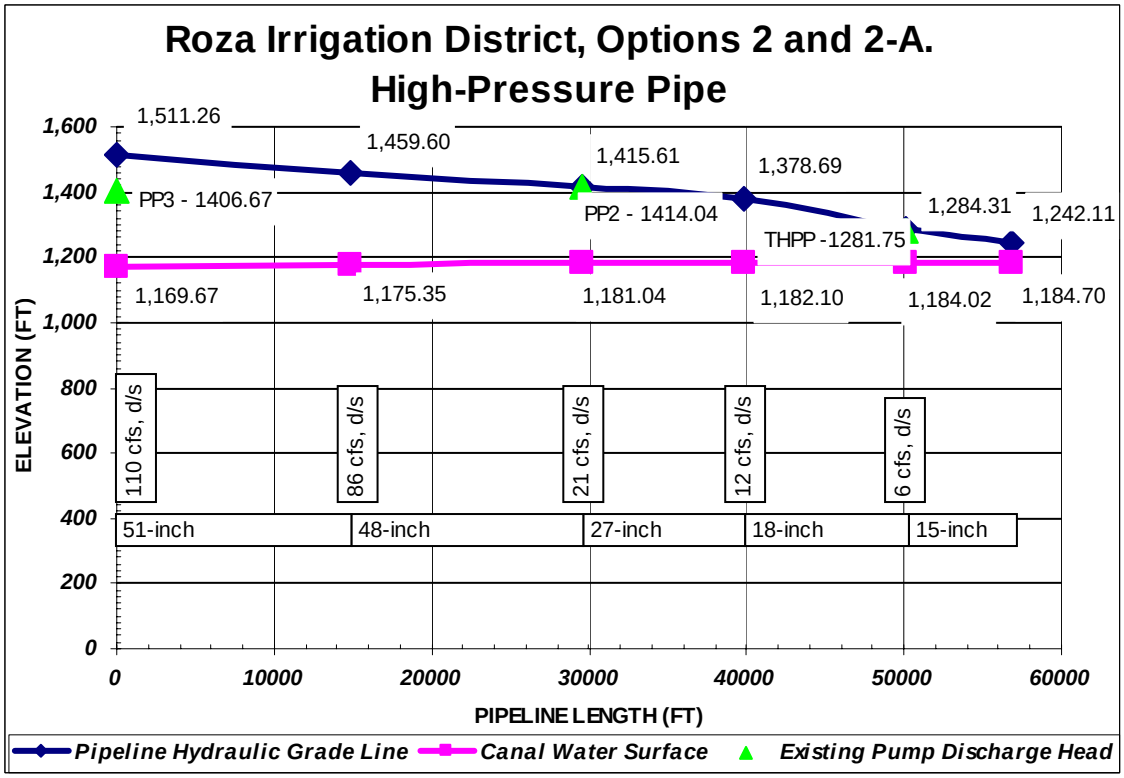

FLOW DIAGRAM
Plan 5
Roza Diversion Dam
1,080 cfs
(1,020 cfs Roza Powerplant)
(40 cfs Roza-Selah lands)
(20 cfs Selah-Moxee)
M.P. 5.5
1,020 cfs
Roza Powerplant
M.P. 11
M.P. 11.7 Terminal check
M.P. 13 check/relift
M.P. 16.8 check/relift
M.P. 18.7 check/relift
M.P. 20.6 check/relift
Pipe drop/turnout
80 cfs Selah-Moxee
70 cfs Union Gap
325 cfs
1,210 cfs
Black Rock Reservoir
Outflow Conduit
M.P. 22.6
885 cfs
Columbia River Water
Yakima River Water

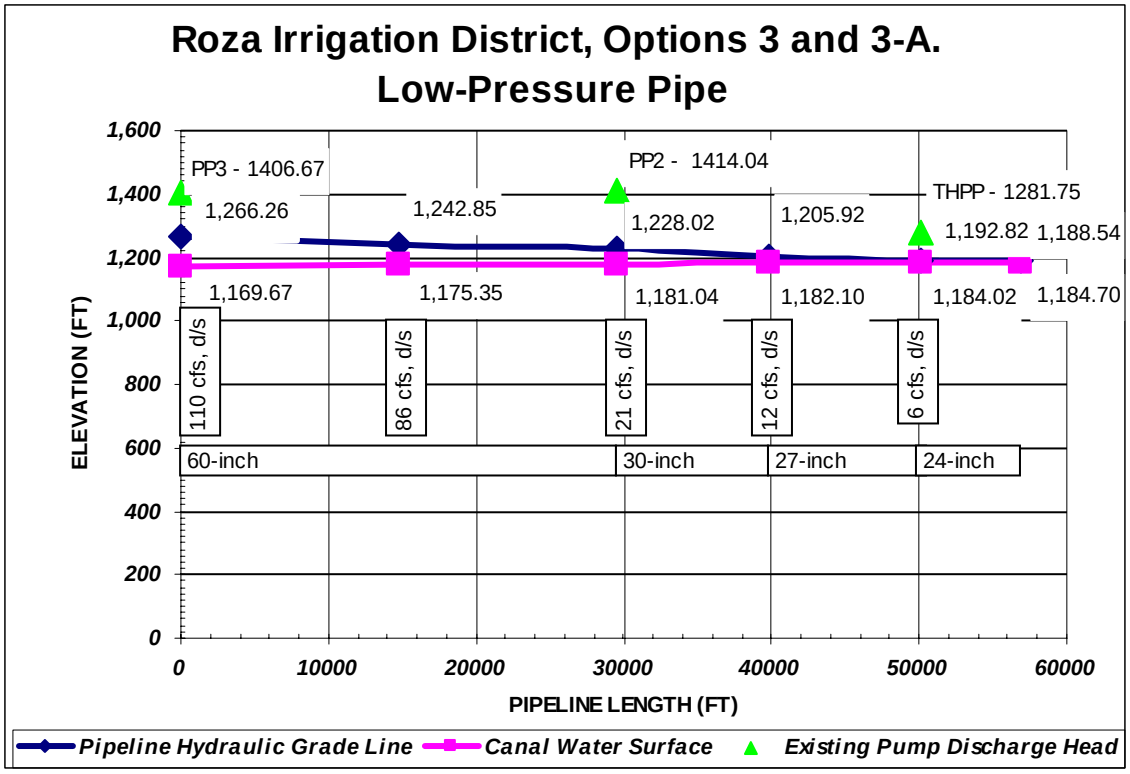

FLOW DIAGRAM
Plan 6
Roza Diversion Dam
1,230 cfs
(1,020 cfs Roza Powerplant)
(180 cfs deliveries, includes 30 cfs to PP#3)
(30 cfs through flow)
M.P. 5.5
1,020 cfs
Roza Powerplant
M.P. 11
M.P. 22.5 (PP#3)
35 cfs PP#3
890 cfs
Black Rock Reservoir
Outflow Conduit
M.P. 22.6
30 cfs
through flow
855 cfs
885 cfs
Columbia River Water
Yakima River Water

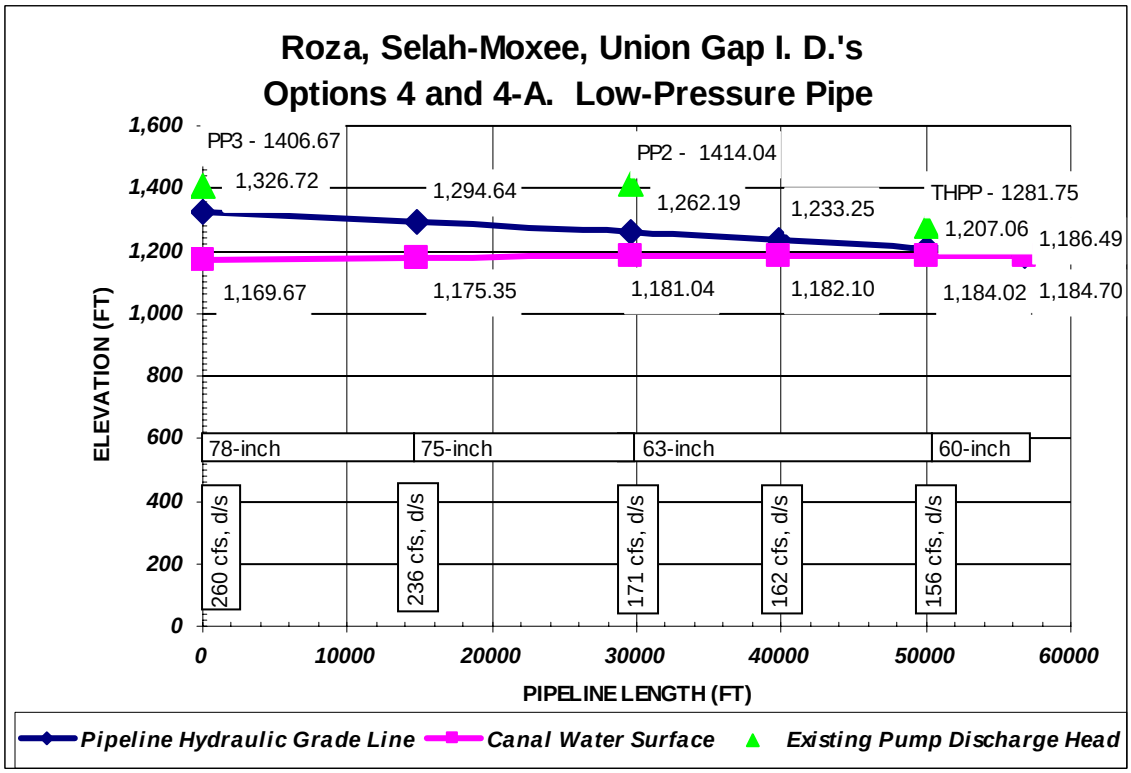
ATTACHMENT B.

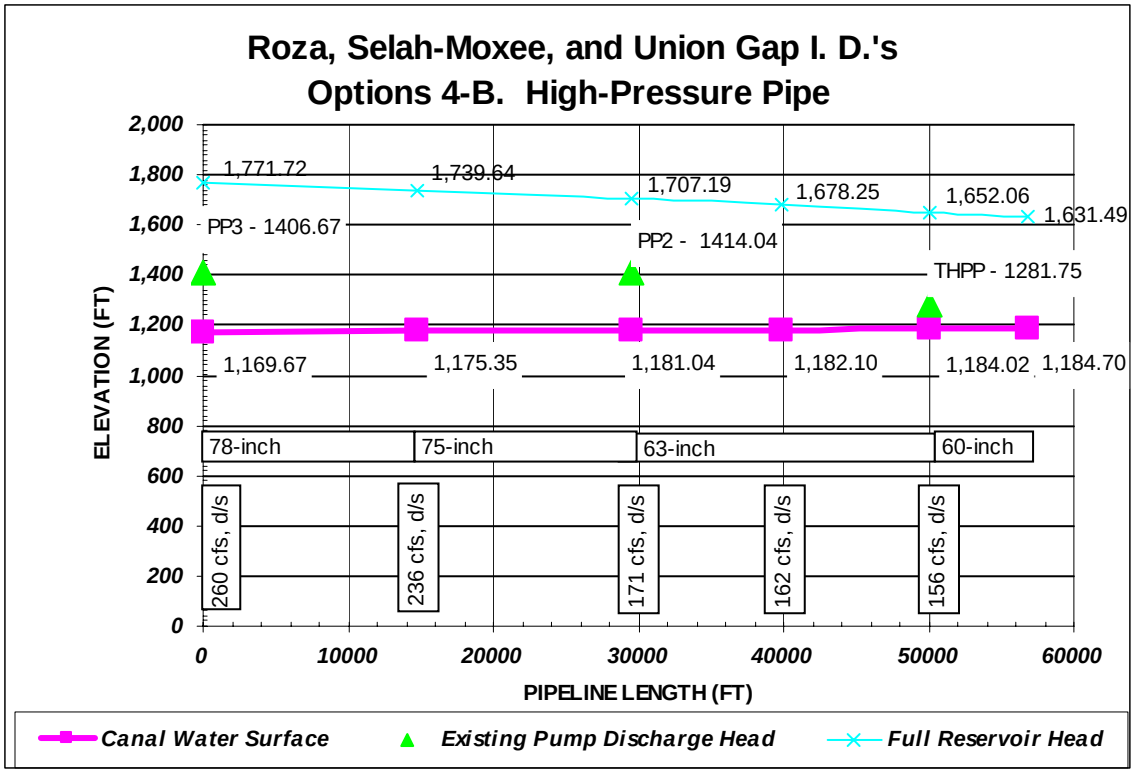
HYDRAULIC GRADELINES, PLANS 1-5

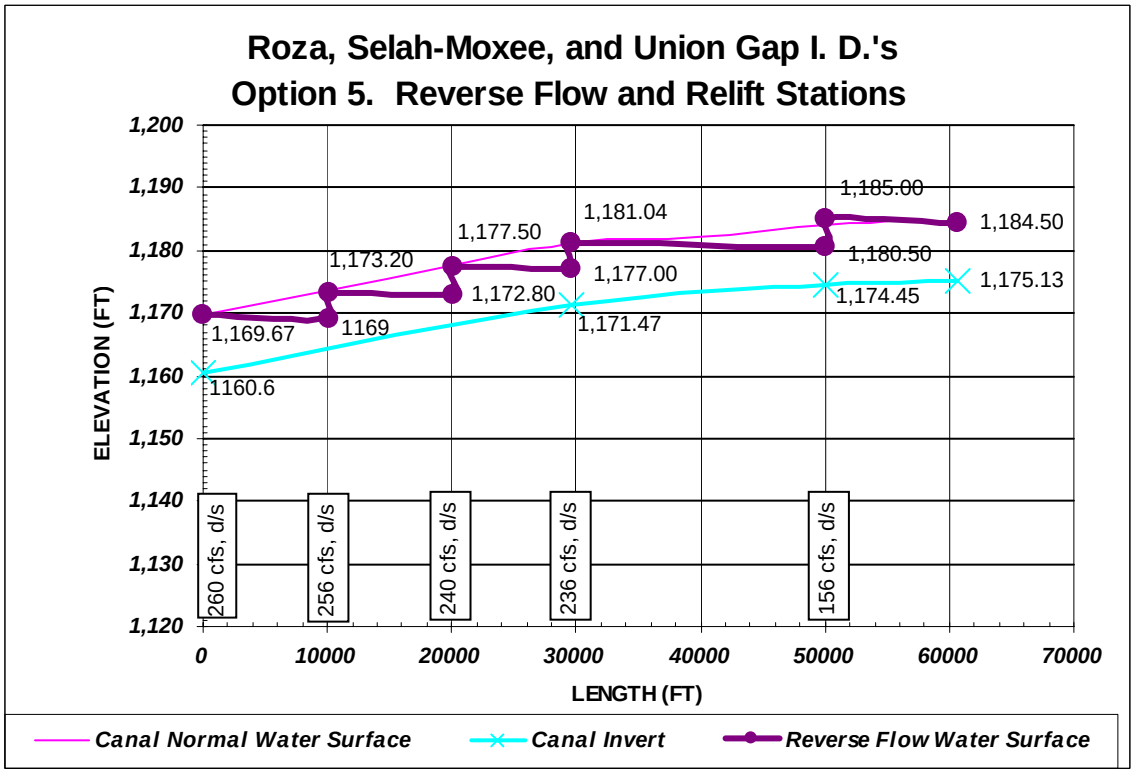

Roza Irrigation District, Options 1 and 1-A.
Full Exchange, High-Pressure Pipe
1,494.52
1,452.95
1,414.31
1,392.22
1,369.21
1,329.79
1,227.72
1,205.72
PP1- 1416
PP3 - 1406.67
PP2 - 1414.04
THPP-1281.75
1,169.67
1,175.35
1,181.04
1,182.10
1,184.02
1,184.70
1,198.00
1,198.70
150 cfs, d/s
61 cfs, d/s
46 cfs, d/s
2 cfs, d/s
60-inch
57-inch
45-inch
42-inch
33-inch
12-inch
Tunnel #3
ELEVATION (FT)
PIPELINE LENGTH (FT)
Pipeline Hydraulic Grade Line
Canal Water Surface
Existing Pump Discharge Head


Roza Irrigation District, Options 2 and 2-A.
High-Pressure Pipe
1,511.26
1,459.60
1,415.61
1,378.69
1,284.31
1,242.11
PP3 - 1406.67
PP2 - 1414.04
THPP -1281.75
1,169.67
1,175.35
1,181.04
1,182.10
1,184.02
1,184.70
110 cfs, d/s
86 cfs, d/s
21 cfs, d/s
12 cfs, d/s
6 cfs, d/s
51-inch
48-inch
27-inch
18-inch
15-inch
ELEVATION (FT)
PIPELINE LENGTH (FT)
Pipeline Hydraulic Grade Line
Canal Water Surface
Existing Pump Discharge Head


Roza Irrigation District, Options 3 and 3-A.
Low-Pressure Pipe
PP3 - 1406.67
PP2 - 1414.04
THPP - 1281.75
1,266.26
1,242.85
1,228.02
1,205.92
1,192.82
1,188.54
1,169.67
1,175.35
1,181.04
1,182.10
1,184.02
1,184.70
110 cfs, d/s
86 cfs, d/s
21 cfs, d/s
12 cfs, d/s
6 cfs, d/s
60-inch
30-inch
27-inch
24-inch
ELEVATION (FT)
PIPELINE LENGTH (FT)
Pipeline Hydraulic Grade Line
Canal Water Surface
Existing Pump Discharge Head


Roza, Selah-Moxee, Union Gap I. D.'s
Options 4 and 4-A. Low-Pressure Pipe
PP3 - 1406.67
PP2 - 1414.04
THPP - 1281.75
1,326.72
1,294.64
1,262.19
1,233.25
1,207.06
1,186.49
1,169.67
1,175.35
1,181.04
1,182.10
1,184.02
1,184.70
78-inch
75-inch
63-inch
60-inch
260 cfs, d/s
236 cfs, d/s
171 cfs, d/s
162 cfs, d/s
156 cfs, d/s
ELEVATION (FT)
PIPELINE LENGTH (FT)
Pipeline Hydraulic Grade Line
Canal Water Surface
Existing Pump Discharge Head


Roza, Selah-Moxee, and Union Gap I. D.'s
Options 4-B. High-Pressure Pipe
ELEVATION (FT)
PIPELINE LENGTH (FT)
1,771.72
1,739.64
1,707.19
1,678.25
1,652.06
1,631.49
PP3 - 1406.67
PP2 - 1414.04
THPP - 1281.75
1,169.67
1,175.35
1,181.04
1,182.10
1,184.02
1,184.70
78-inch
75-inch
63-inch
60-inch
260 cfs, d/s
236 cfs, d/s
171 cfs, d/s
162 cfs, d/s
156 cfs, d/s
Canal Water Surface
Existing Pump Discharge Head
Full Reservoir Head


Roza, Selah-Moxee, and Union Gap I. D.'s
Option 5. Reverse Flow and Relift Stations
ELEVATION (FT)
LENGTH (FT)
1,185.00
1,184.50
1,181.04
1,177.50
1,173.20
1,180.50
1,177.00
1,175.13
1,172.80
1,174.45
1,169.67
1169
1,171.47
1160.6
260 cfs, d/s
256 cfs, d/s
240 cfs, d/s
236 cfs, d/s
156 cfs, d/s
Canal Normal Water Surface
Canal Invert
Reverse Flow Water Surface

ATTACHMENT C.

AERIAL PHOTOGRAPHS

The five aerial photographs in Attachment C are excluded from this file because of their large sizes. Each individual aerial photograph can be viewed from the Roza delivery system website:

http://137.77.133.1/pn/programs/storage_study/roza.html