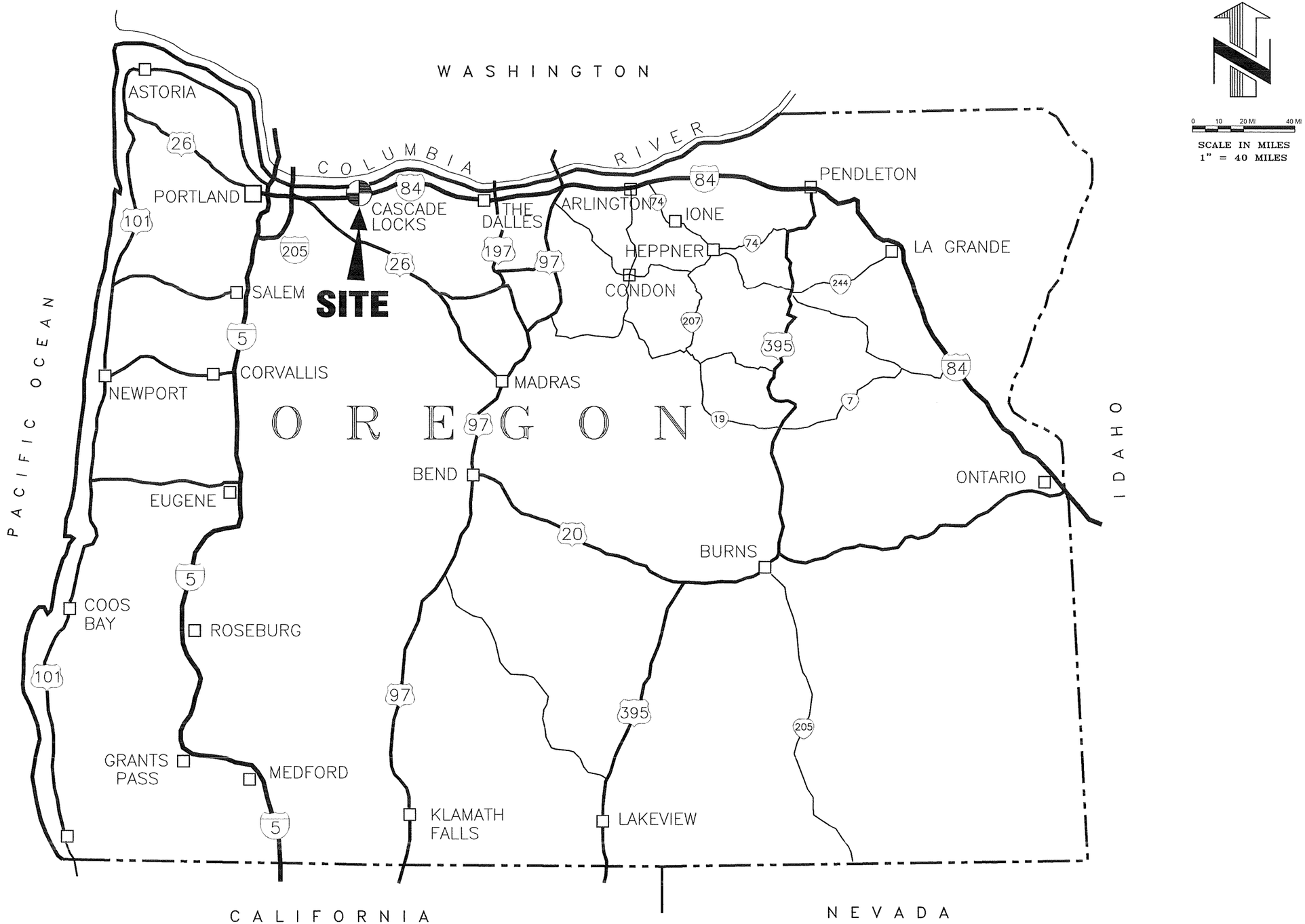


VICINITY MAP

Design D.O.E.	Survey T.E.C.
DWG. No. K:\ACAD\14000\14020\SYSTEM_MAP	
Date 2/21/2014	Drawn R.S.S.
Work Order No. 14020	Scale AS NOTED

VICINITY MAP
FOR
CITY OF CASCADE LOCKS
CASCADE LOCKS, OREGON
Plot Date: 2/21/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

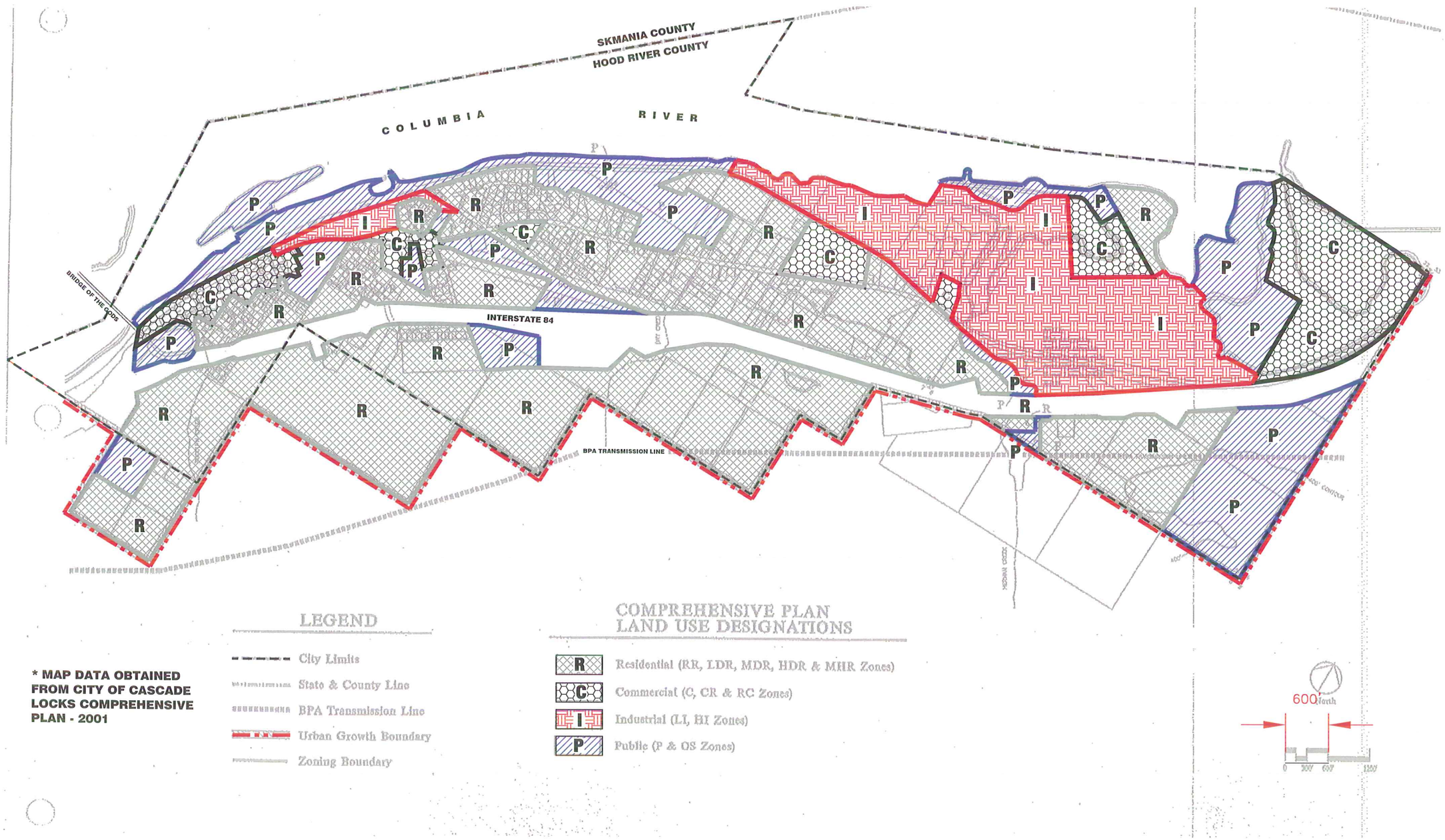
WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

VICINITY

FIGURE 1

Work Order No.
14020



* MAP DATA OBTAINED FROM CITY OF CASCADE LOCKS COMPREHENSIVE PLAN - 2001

Design D.O.E.	Survey T.E.C.
DWG. No. K:\ACAD\14000\14020\SYSTEM_MAP	
Date 2/21/2014	Drawn R.S.S.
Work Order No. 14020	Scale AS NOTED

COMPREHENSIVE PLAN MAP

FOR

CITY OF CASCADE LOCKS

CASCADE LOCKS, OREGON

Plot Date: 2/21/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

COMP/ZONE

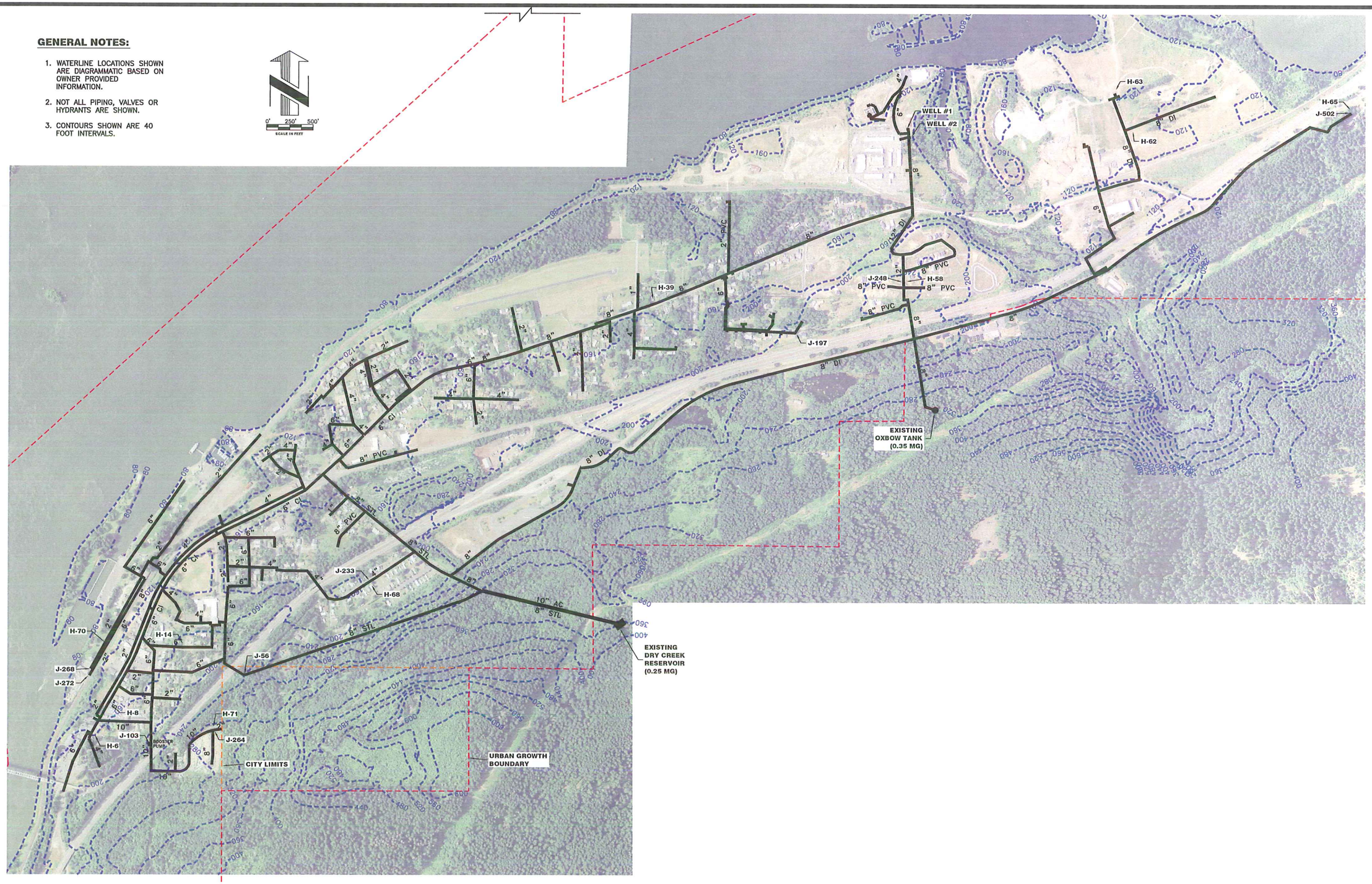
FIGURE 2

Work Order No. 14020

GENERAL NOTES:

1. WATERLINE LOCATIONS SHOWN ARE DIAGRAMMATIC BASED ON OWNER PROVIDED INFORMATION.
2. NOT ALL PIPING, VALVES OR HYDRANTS ARE SHOWN.
3. CONTOURS SHOWN ARE 40 FOOT INTERVALS.

0' 250' 500'
SCALE IN FEET



WATER SYSTEM MAP

SCALE: 1"= 500'

Design D.O.E.	Survey T.E.C.
DWG. No. K:\ACAD\14000\14020\SYSTEM_MAP	
Date 2/21/2014	Drawn R.S.S.
Work Order No. 14020	Scale AS NOTED

WATER SYSTEM MAP
FOR
CITY OF CASCADE LOCKS
CASCADE LOCKS, OREGON
Plot Date: 2/21/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

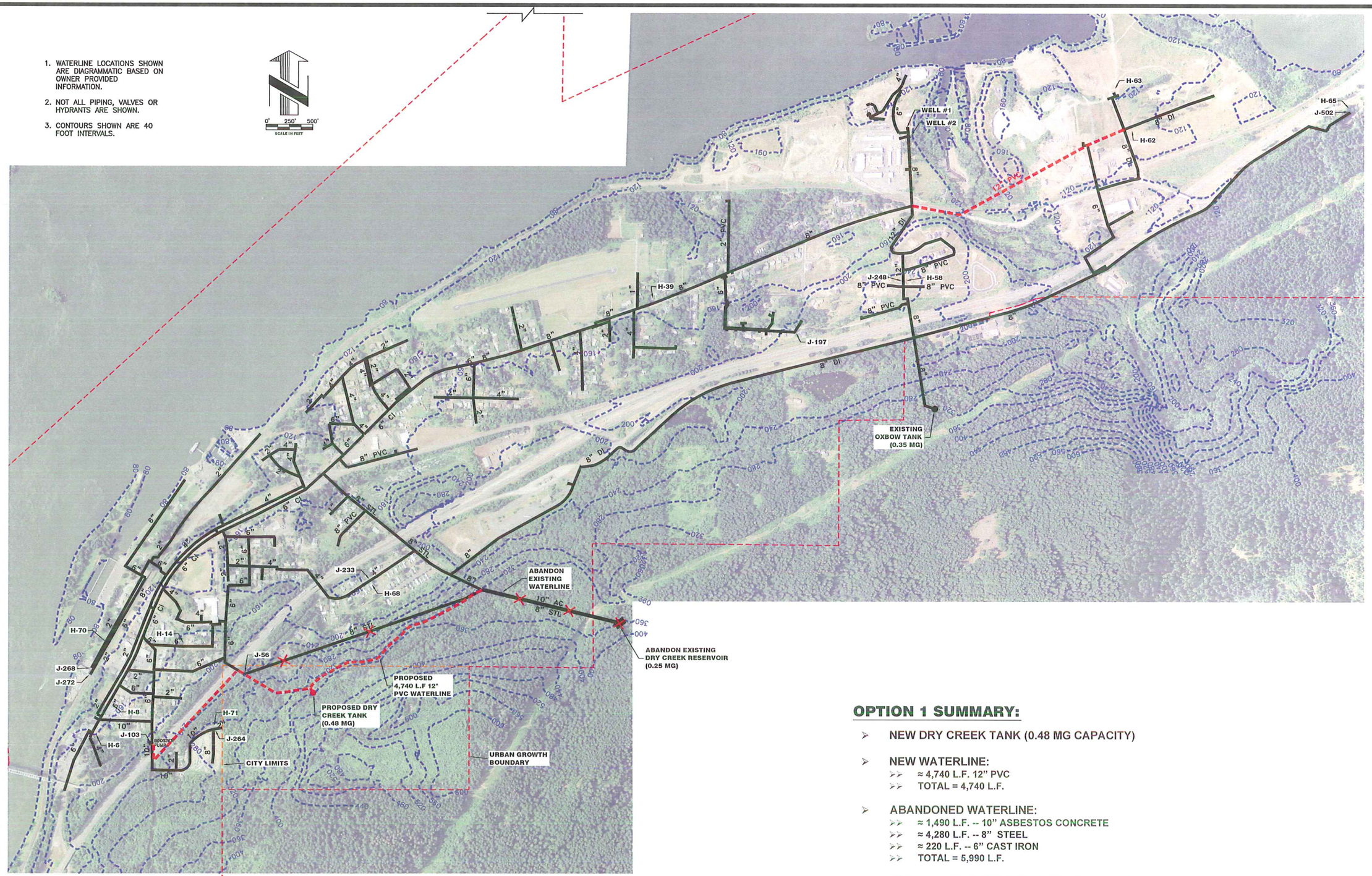
EXISTING

FIGURE 3

Work Order No. 14020

1. WATERLINE LOCATIONS SHOWN ARE DIAGRAMMATIC BASED ON OWNER PROVIDED INFORMATION.
2. NOT ALL PIPING, VALVES OR HYDRANTS ARE SHOWN.
3. CONTOURS SHOWN ARE 40 FOOT INTERVALS.

0' 250' 500'
SCALE IN FEET



OPTION 1 SUMMARY:

- NEW DRY CREEK TANK (0.48 MG CAPACITY)
- NEW WATERLINE:
  - ≈ 4,740 L.F. 12" PVC
  - TOTAL = 4,740 L.F.
- ABANDONED WATERLINE:
  - ≈ 1,490 L.F. -- 10" ASBESTOS CONCRETE
  - ≈ 4,280 L.F. -- 8" STEEL
  - ≈ 220 L.F. -- 6" CAST IRON
  - TOTAL = 5,990 L.F.
- PRELIMINARY COST ESTIMATE ≈ $1,411,600

OPTION 1 MAP

SCALE: 1"= 500'

Design	D.O.E.
Survey	T.E.C.
DWG. No.	K:\ACAD\14000\14020\SYSTEM_MAP
Date	2/21/2014
Drawn	R.S.S.
Work Order No.	14020
Scale	AS NOTED

OPTION 1 MAP

FOR

CITY OF CASCADE LOCKS

CASCADE LOCKS, OREGON

Plot Dates: 2/21/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

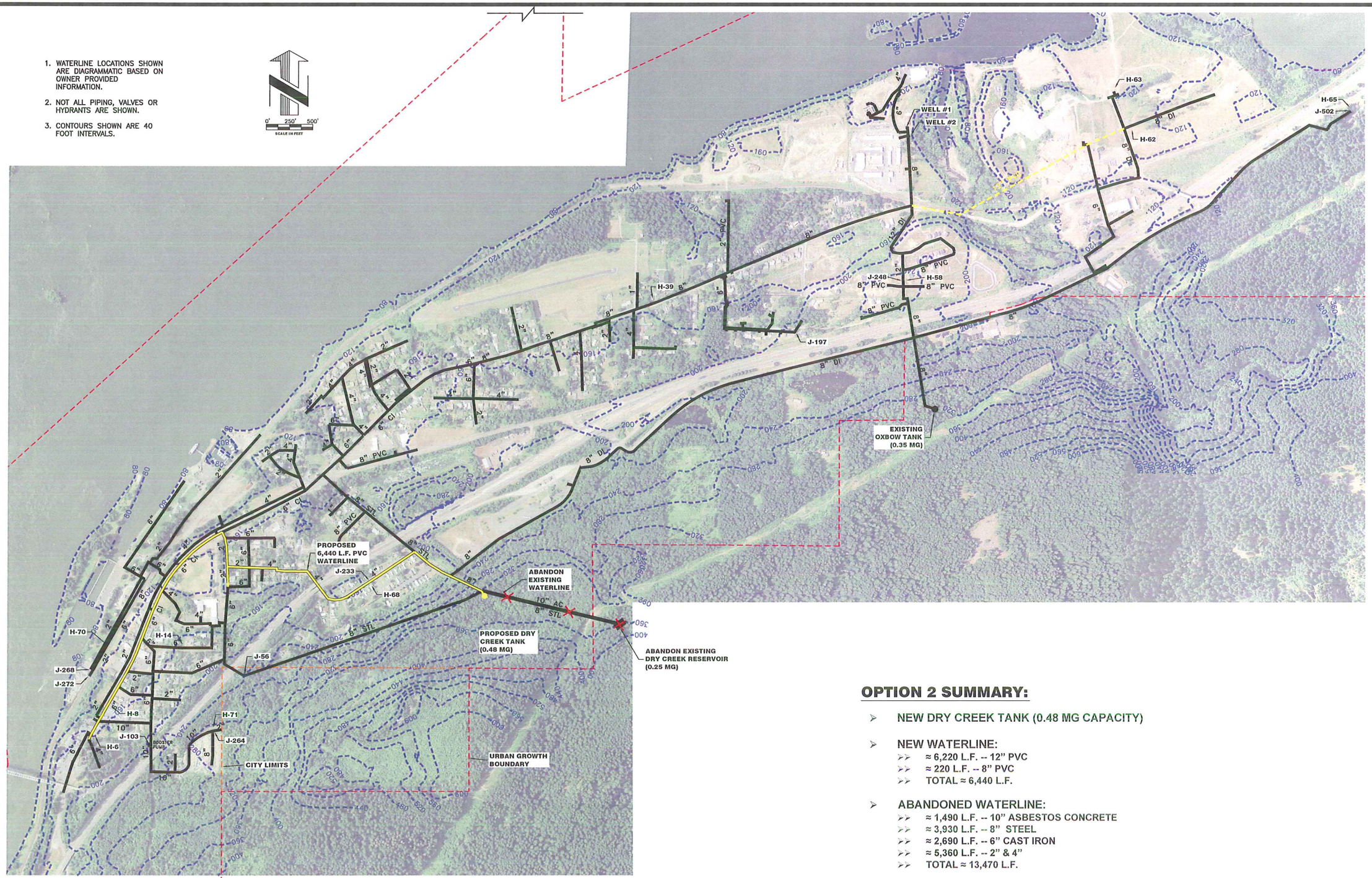
OPTION 1

FIGURE 4

Work Order No. 14020

1. WATERLINE LOCATIONS SHOWN ARE DIAGRAMMATIC BASED ON OWNER PROVIDED INFORMATION.
2. NOT ALL PIPING, VALVES OR HYDRANTS ARE SHOWN.
3. CONTOURS SHOWN ARE 40 FOOT INTERVALS.

0' 250' 500'
SCALE IN FEET



OPTION 2 SUMMARY:

- NEW DRY CREEK TANK (0.48 MG CAPACITY)
- NEW WATERLINE:
  - ≈ 6,220 L.F. -- 12" PVC
  - ≈ 220 L.F. -- 8" PVC
  - TOTAL ≈ 6,440 L.F.
- ABANDONED WATERLINE:
  - ≈ 1,490 L.F. -- 10" ASBESTOS CONCRETE
  - ≈ 3,930 L.F. -- 8" STEEL
  - ≈ 2,690 L.F. -- 6" CAST IRON
  - ≈ 5,360 L.F. -- 2" & 4"
  - TOTAL ≈ 13,470 L.F.
- PRELIMINARY COST ESTIMATE ≈ $2,279,100

OPTION 2 MAP

SCALE: 1"= 500'

Design	D.O.E.
Survey	T.E.C.
DWG. No.	K:\ACAD\14000\14020\SYSTEM_MAP
Date	2/21/2014
Drawn	R.S.S.
Work Order No.	14020
Scale	AS NOTED

OPTION 2 MAP

FOR

CITY OF CASCADE LOCKS

CASCADE LOCKS, OREGON

Plot Date: 2/21/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

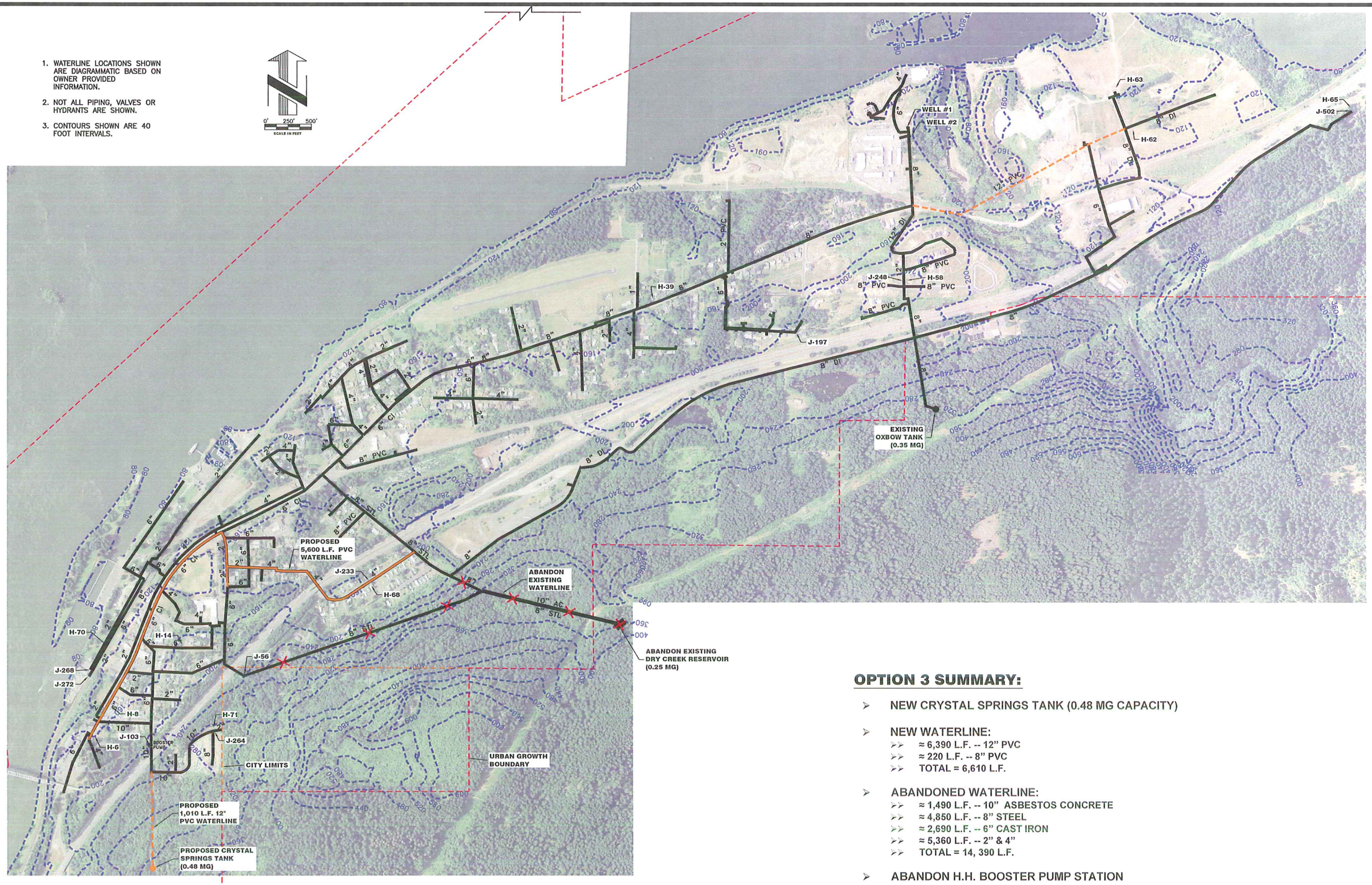
OPTION 2

FIGURE 5

Work Order No. 14020

1. WATERLINE LOCATIONS SHOWN ARE DIAGRAMMATIC BASED ON OWNER PROVIDED INFORMATION.
2. NOT ALL PIPING, VALVES OR HYDRANTS ARE SHOWN.
3. CONTOURS SHOWN ARE 40 FOOT INTERVALS.

0' 250' 500'
SCALE IN FEET



OPTION 3 SUMMARY:

- NEW CRYSTAL SPRINGS TANK (0.48 MG CAPACITY)
- NEW WATERLINE:
  - ≈ 6,390 L.F. -- 12" PVC
  - ≈ 220 L.F. -- 8" PVC
  - TOTAL = 6,610 L.F.
- ABANDONED WATERLINE:
  - ≈ 1,490 L.F. -- 10" ASBESTOS CONCRETE
  - ≈ 4,850 L.F. -- 8" STEEL
  - ≈ 2,690 L.F. -- 6" CAST IRON
  - ≈ 5,360 L.F. -- 2" & 4"
  - TOTAL = 14, 390 L.F.
- ABANDON H.H. BOOSTER PUMP STATION
- PRELIMINARY COST ESTIMATE ≈ $2,269,400

OPTION 3 MAP

SCALE: 1"= 500'

Design	D.O.E.
Survey	T.E.C.
DWG. No.	K:\ACAD\14000\14020\SYSTEM_MAP
Date	2/21/2014
Drawn	R.S.S.
Work Order No.	14020
Scale	AS NOTED

OPTION 3 MAP

FOR

CITY OF CASCADE LOCKS

CASCADE LOCKS, OREGON

Plot Date: 2/21/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

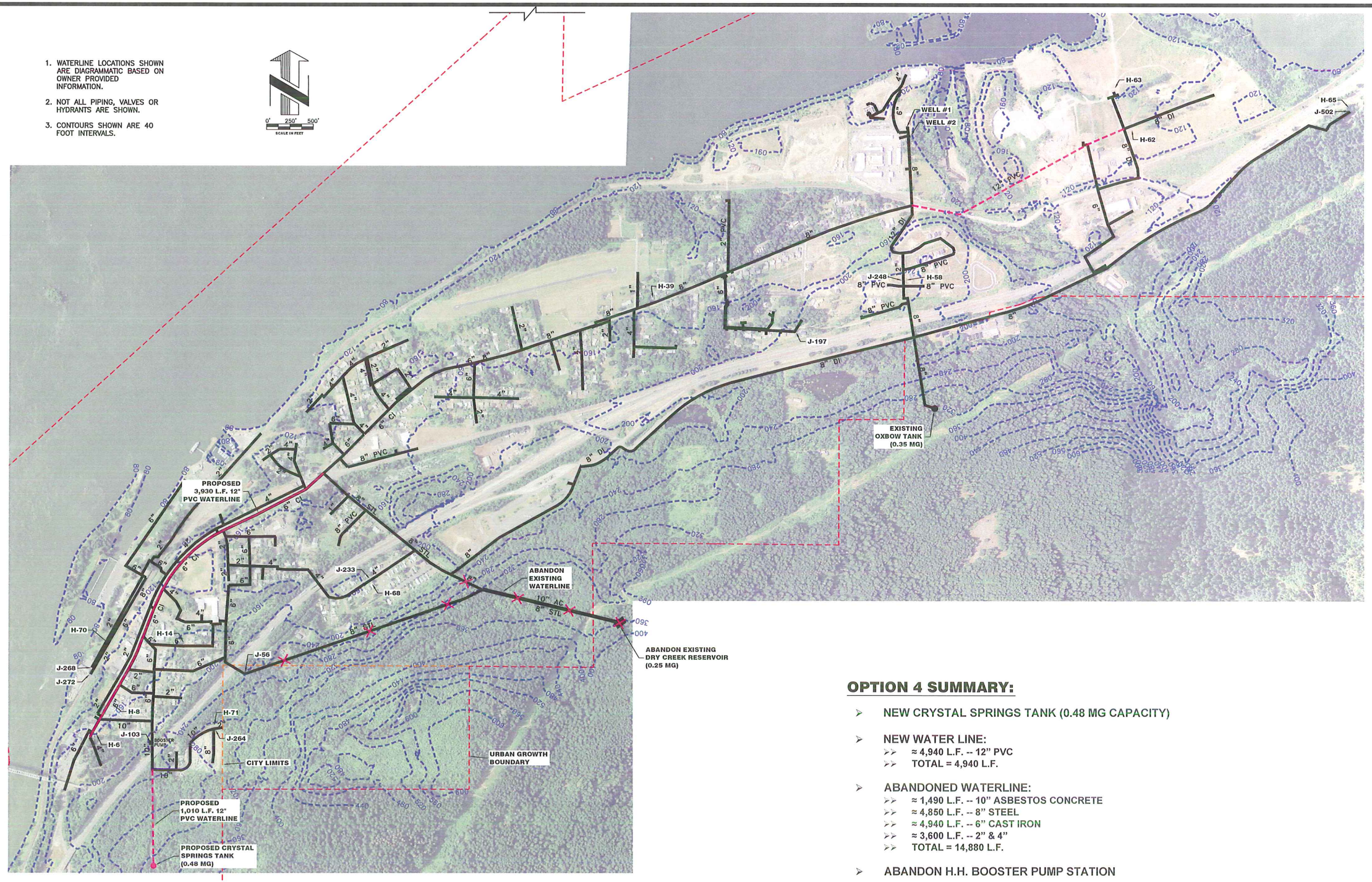
OPTION 3

FIGURE 6

Work Order No. 14020

1. WATERLINE LOCATIONS SHOWN ARE DIAGRAMMATIC BASED ON OWNER PROVIDED INFORMATION.
2. NOT ALL PIPING, VALVES OR HYDRANTS ARE SHOWN.
3. CONTOURS SHOWN ARE 40 FOOT INTERVALS.

0' 250' 500'
SCALE IN FEET



OPTION 4 SUMMARY:

- NEW CRYSTAL SPRINGS TANK (0.48 MG CAPACITY)
- NEW WATER LINE:
  - ≈ 4,940 L.F. -- 12" PVC
  - TOTAL = 4,940 L.F.
- ABANDONED WATERLINE:
  - ≈ 1,490 L.F. -- 10" ASBESTOS CONCRETE
  - ≈ 4,850 L.F. -- 8" STEEL
  - ≈ 4,940 L.F. -- 6" CAST IRON
  - ≈ 3,600 L.F. -- 2" & 4"
  - TOTAL = 14,880 L.F.
- ABANDON H.H. BOOSTER PUMP STATION
- PRELIMINARY COST ESTIMATE ≈ $1,931,400

OPTION 4 MAP

SCALE: 1"= 500'

Design	D.O.E.
Survey	T.E.C.
DWG. No.	K:\ACAD\14000\14020\SYSTEM_MAP
Date	2/21/2014
Drawn	R.S.S.
Work Order No.	14020
Scale	AS NOTED

OPTION 4 MAP

FOR

CITY OF CASCADE LOCKS

CASCADE LOCKS, OREGON

Plot Date: 2/21/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

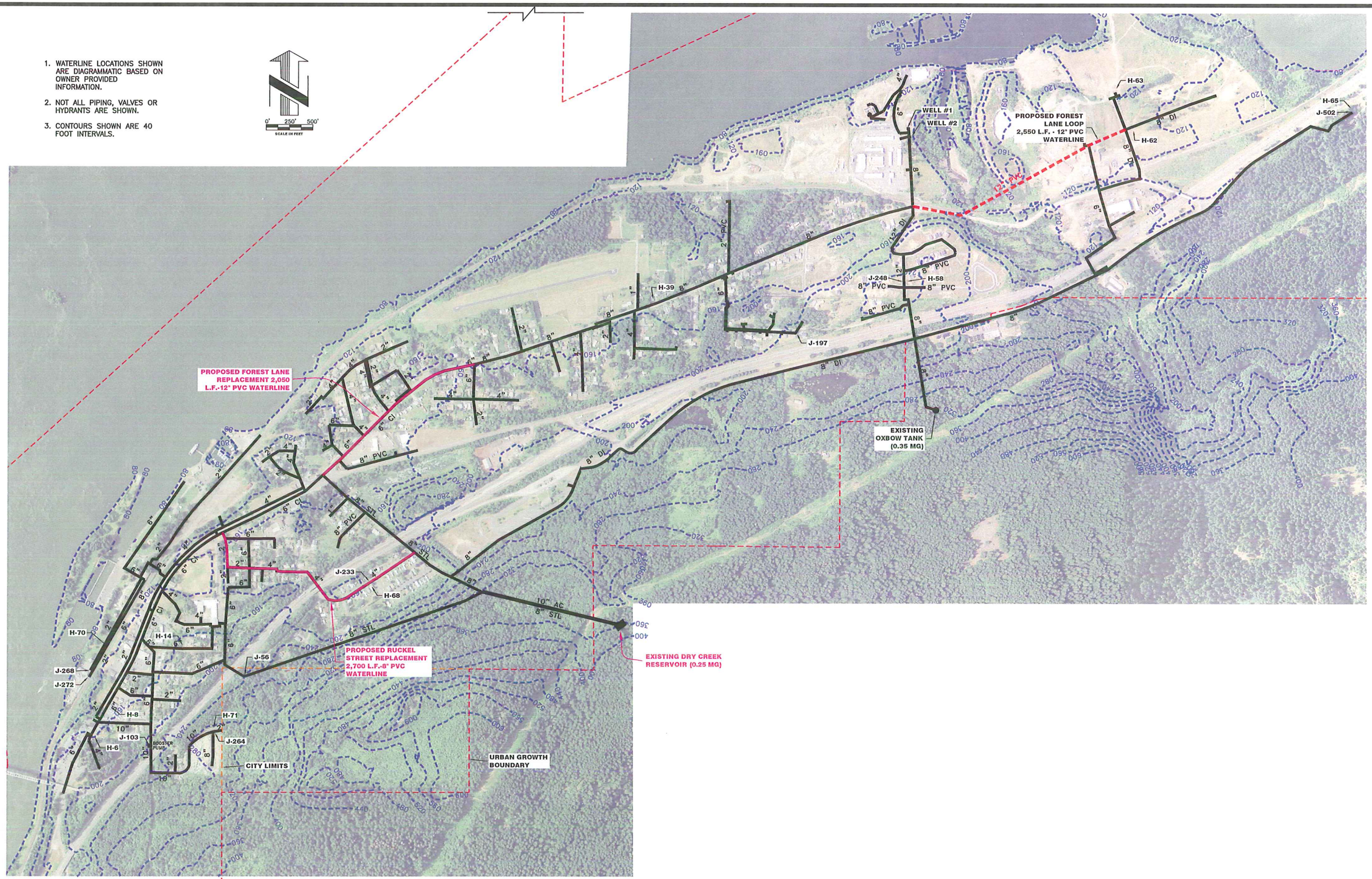
OPTION 4

FIGURE 7

Work Order No. 14020

1. WATERLINE LOCATIONS SHOWN ARE DIAGRAMMATIC BASED ON OWNER PROVIDED INFORMATION.
2. NOT ALL PIPING, VALVES OR HYDRANTS ARE SHOWN.
3. CONTOURS SHOWN ARE 40 FOOT INTERVALS.

0' 250' 500'
SCALE IN FEET



WATERLINE IMPROVEMENTS

SCALE: 1"= 500'

Design	D.O.E.
Survey	T.E.C.
DWG. No.	K:\ACAD\14000\14020\SYSTEM_MAP
Date	2/21/2014
Drawn	R.S.S.
Work Order No.	14020
Scale	AS NOTED

WATERLINE IMPROVEMENTS
FOR
CITY OF CASCADE LOCKS
CASCADE LOCKS, OREGON
Plot Date: 2/21/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

WTRLINE

FIGURE 8

Work Order No. 14020

CITY OF CASCADE LOCKS
WATER SYSTEM IMPROVEMENTS
CONSTRUCTION COST ESTIMATES

Improvement Project				Crystal Springs Tank and Transmission Main		Forest Lane Watermain Loop		Wa Na Pa Street Watermain Replacement		Well No. 1 Upgrade		Well No. 3 Construction		Ruckel Street Watermain Replacement		Forest Lane Watermain Replacement		Oxbow Tank Recoating	
Item	Unit Cost		Unit	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
Distribution System																			
12" Wtr in Pvmt	$	120	/ L.F.		$ -	600	$ 72,000	3930	$ 471,600						$ -		$ -		
12" Wtr in Shldr	$	80	/ L.F.		$ -		$ -		$ -						$ -	2050	$ 164,000		
12" Wtr in Native	$	70	/ L.F.	1010	$ 70,700	2100	$ 147,000	0	$ -						$ -		$ -		
8" Wtr in Pvmt	$	100	/ L.F.		$ -		$ -		$ -						$ -		$ -		
8" Wtr in Shldr	$	55	/ L.F.		$ -		$ -		$ -					2700	$ 148,500		$ -		
8" Wtr in Native	$	45	/ L.F.		$ -		$ -		$ -						$ -		$ -		
6" Wtr in Pvmt	$	90	/ L.F.		$ -		$ -		$ -						$ -		$ -		
6" Wtr in Shldr	$	45	/ L.F.		$ -		$ -		$ -						$ -		$ -		
6" Wtr in Native	$	35	/ L.F.		$ -		$ -		$ -						$ -		$ -		
12" Valves	$	2,500	/EACH	2	$ 5,000	4	$ 10,000	8	$ 20,000						$ -	3	$ 7,500		
8" Valves	$	1,600	/EACH		$ -		$ -		$ -					9	$ 14,400		$ -		
6" Valves	$	1,000	/EACH		$ -		$ -		$ -						$ -		$ -		
Air / Vac Valve Assembly	$	3,500	/EACH		$ -		$ -		$ -						$ -		$ -		
Fire Hydrant Assembly	$	4,500	/EACH	2	$ 9,000	2	$ 9,000	10	$ 45,000					6	$ 27,000	5	$ 22,500		
12" Connection	$	6,500	/EACH		$ -		$ -		$ -					1	$ 6,500	1	$ 6,500		
10" Connection	$	6,500	/EACH	1	$ 6,500		$ -	2	$ 13,000						$ -		$ -		
8" Connection	$	5,000	/EACH		$ -	2	$ 10,000	2	$ 10,000					1	$ 5,000	2	$ 10,000		
6" Connection	$	4,250	/EACH		$ -		$ -	7	$ 29,750					5	$ 21,250	4	$ 17,000		
Service Connection	$	2,500	/EACH		$ -		$ -	30	$ 75,000					20	$ 50,000	30	$ 75,000		
Bridge Crossing	$	600	/ L.F.		$ -	100	$ 60,000		$ -						$ -		$ -		
Water Tank																			
Site Work	$	50,000	/ L.S.	1	$ 50,000														
Foundation	$	50,000	/ L.S.	1	$ 50,000														
Steel Water Tank	$	1,080	/KGAL	481.6	$ 520,128														
Telemetry	$	35,000	/ L.S.	1	$ 35,000														
Demo Existing	$	20,000	/ L.S.	1	$ 20,000														
Well No. 1																			
100-hp Pump and Controls	$	27,000	/ L.S.							1	$ 27,000								
Valving	$	8,000	/ L.S.							1	$ 8,000								
Electrical	$	12,000	/ L.S.							1	$ 12,000								
Bldg. Roof	$	15	/ S.F.							400	$ 6,000								
General Conditions										10%	$ 5,300								
Well No. 3																			
100-hp Pump and Controls	$	40,000	/ L.S.									1	$ 40,000						
Valving	$	25,000	/ L.S.									1	$ 25,000						
Electrical	$	20,000	/ L.S.									1	$ 20,000						
CMU Building	$	150	/ S.F.									400	$ 60,000						
Site Piping	$	30,000	/ L.S.									1	$ 30,000						
18"ø Well	$	300	/ L.F.									120	$ 36,000						
14"ø Well Casing	$	150	/ L.F.									110	$ 16,500						
Well Dev., Test Pump, Etc.	$	30,000	/ L.S.									1	$ 30,000						
General Conditions												10%	$ 25,750						
Tank Recoating																			
Interior Surface	$	10	/ S.F.															8500	$ 85,000
Exterior Surface	$	5	/ S.F.															6000	$ 30,000
General Conditions																		15%	$ 17,250
SUBTOTAL					$ 766,328		$ 308,000		$ 664,350		$ 58,300		$ 283,250		$ 272,650		$ 302,500		$ 132,250
Contingency				20%	$ 153,266	20%	$ 61,600	20%	$ 132,870	20%	$ 11,660	20%	$ 56,650	20%	$ 54,530	20%	$ 60,500	10%	$ 13,225
Engr / Admin / Inspection				15%	$ 114,949	15%	$ 46,200	15%	$ 99,653	12%	$ 6,996	12%	$ 33,990	15%	$ 40,898	15%	$ 45,375	12%	$ 15,870
TOTAL ESTIMATE					**$ 1,034,543**		**$ 415,800**		**$ 896,873**		**$ 76,956**		**$ 373,890**		**$ 368,078**		**$ 408,375**		**$ 161,345**

Notes: 1. Construction cost estimates based on FY 2013/14 construction period.
2. Future projects should allow for inflationary cost increases comparable to the *ENR Construction Cost Index-Seattle Region*
3. Combining projects may result in slightly lower construction and engineering costs due to economy of scale.

Design D.O.E. | Survey T.E.C.
DWG. No. K:\ACAD\14000\14020\SYSTEM_MAP
Date 2/21/2014 | Drawn R.S.S.
Work Order No. 14020 | Scale AS NOTED

CONSTRUCTION COST ESTIMATE
FOR
CITY OF CASCADE LOCKS
CASCADE LOCKS, OREGON
Plot Date: 2/24/2014

TENNESON ENGINEERING CORP.
CONSULTING ENGINEERS
3775 CRATES WAY
THE DALLES, OREGON 97058
PH. 541-296-9177 FAX 541-296-6657

WSMP

IF THIS BAR IS NOT ONE INCH, THEN ADJUST SCALES ACCORDINGLY

COST/EST

FIGURE 9

Work Order No. 14020