EAD ARSENATE PILOT PROJECT

Chelan/Douglas County Commission Workshop - 8.30.21

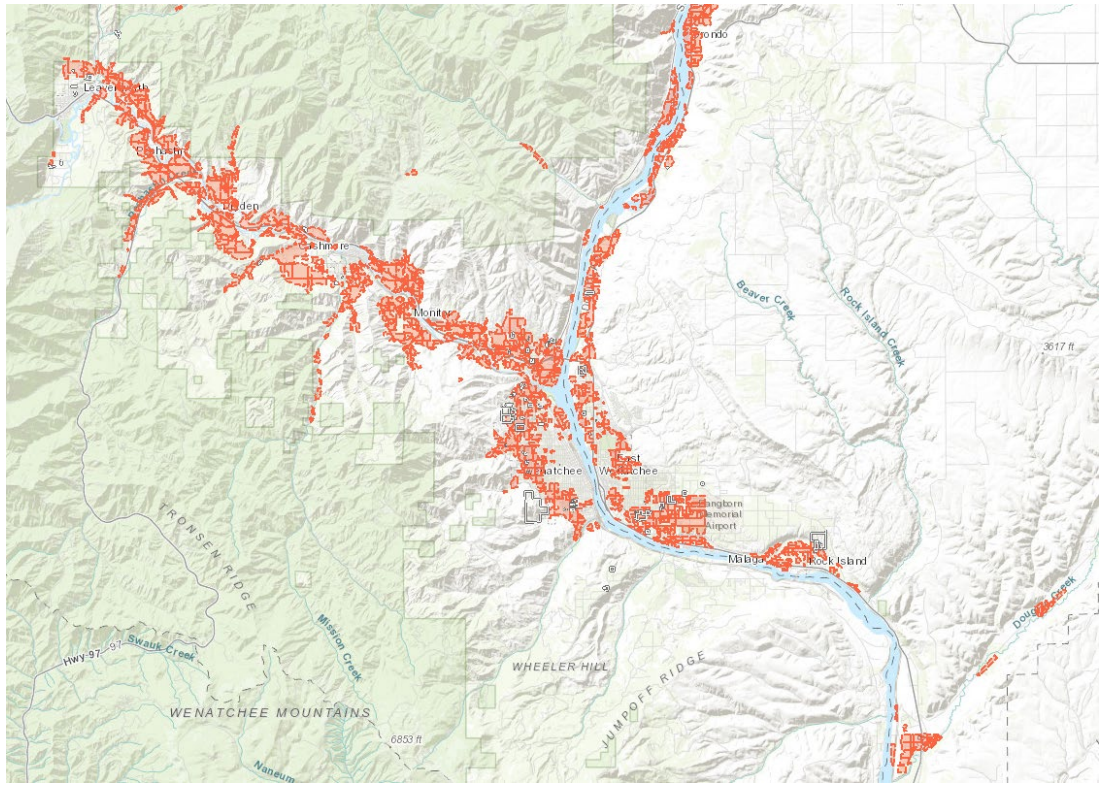
COUNTY OF CHELAN

Agenda

- Project Background and Purpose
- Cameo Development
  - Remedy Approach
- Remediation Cost
- Lesson Learned

Background And Purpose

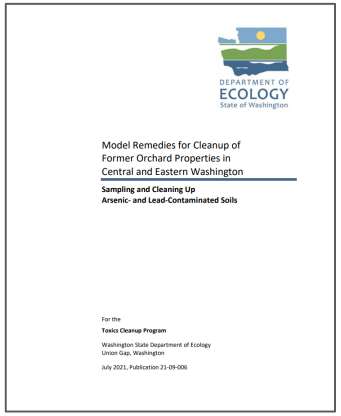
Historical Orchards



Former Orchards

Background

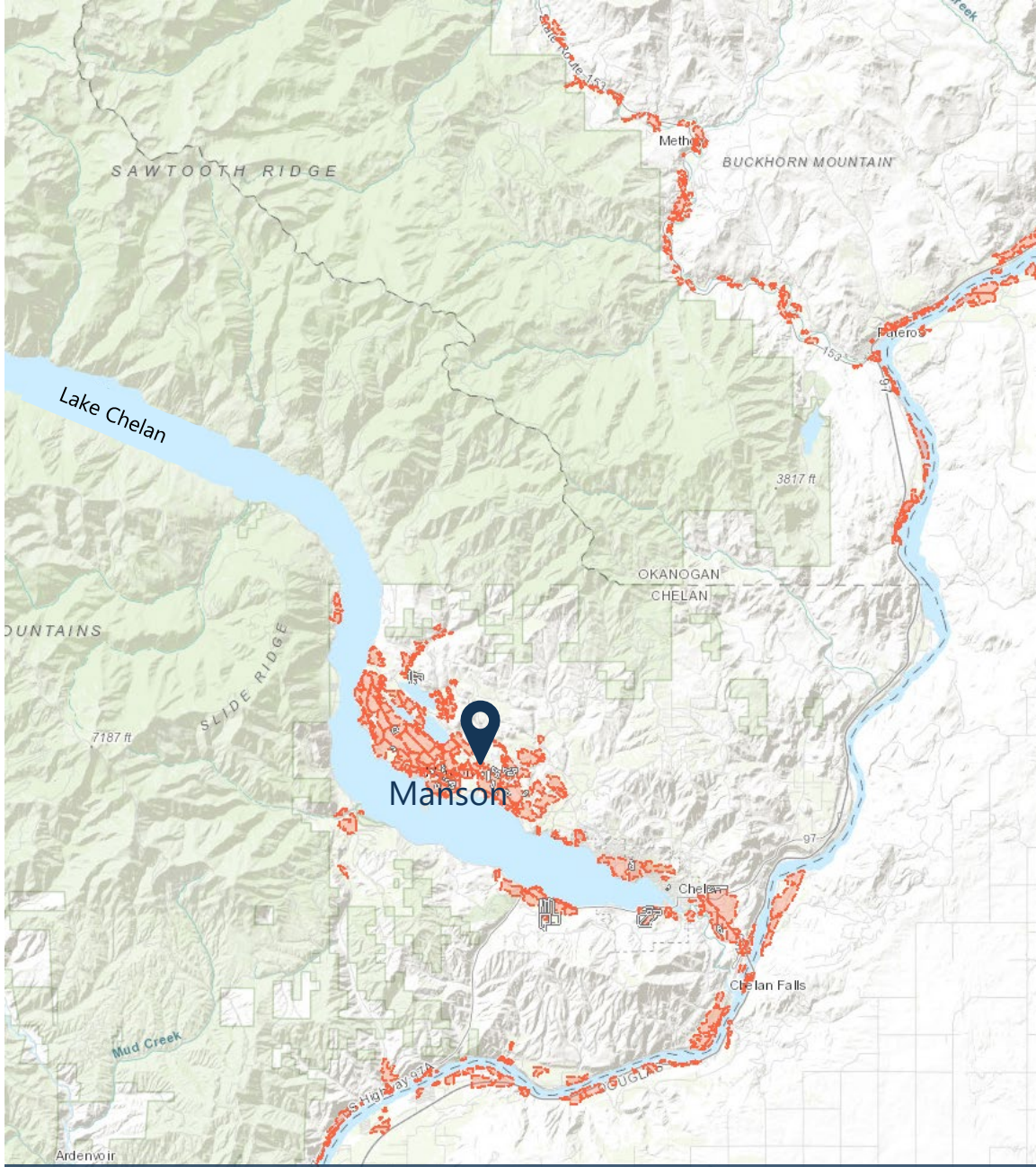
Legacy Pesticide Working Group



Model Remedy

Pilot Project Purpose

- Technical assistance during remedy process
- Model agreements and forms
- Locate and purchase clean soil for soft capping
- Document cost of cleanup
- Education materials



Pilot Project Timeline

Cameo Pre-Development Planning

2018

Subdivision Application

Talos submits initial subdivision application to Chelan County.

2018

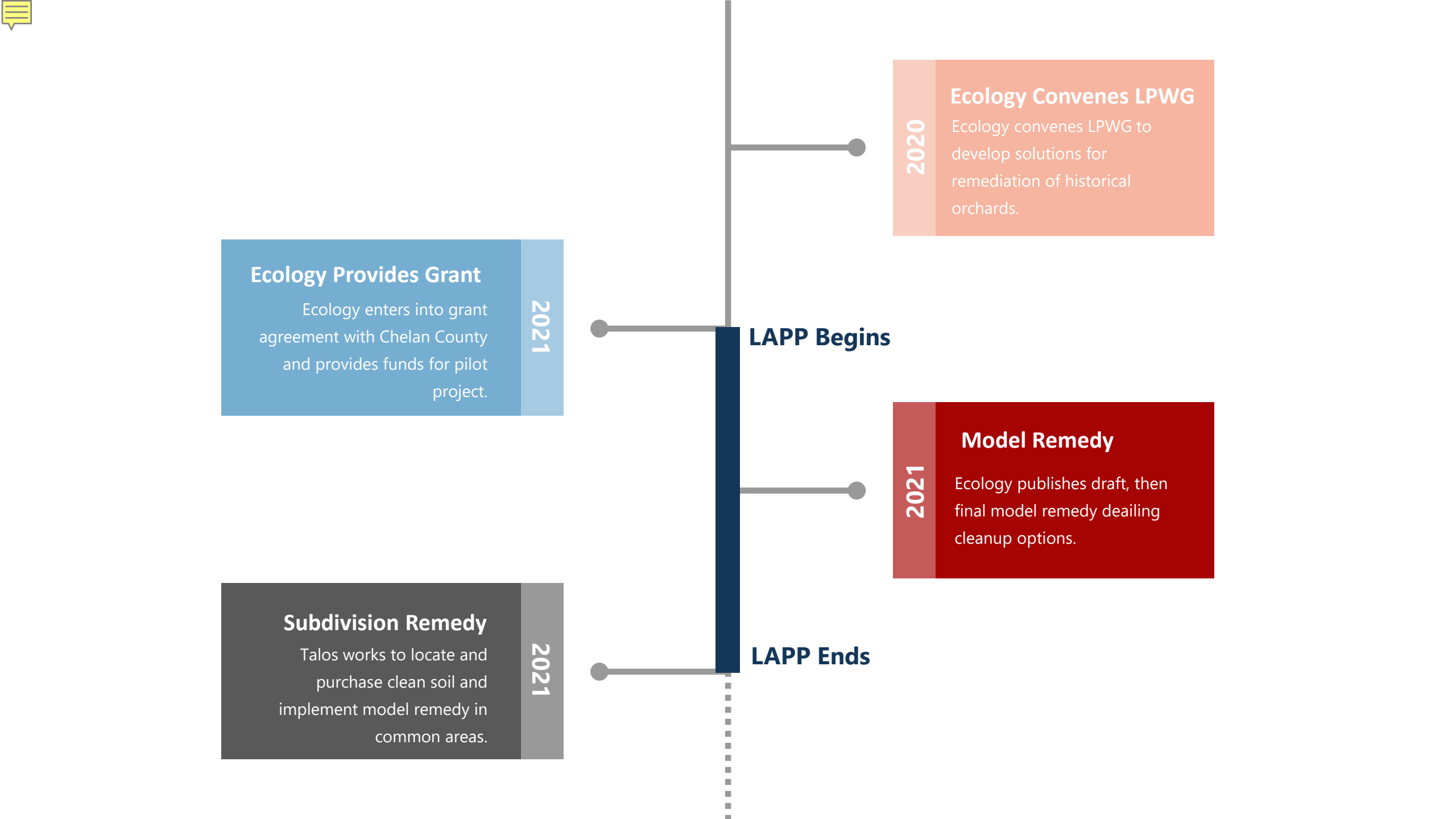
Ecology Comments on SEPA

Ecology flags issue with legacy pesticides through SEPA review process.

2019

Hearing Examiner Decision

Hearing Examiner approves preliminary plat application with condition of addressing LA pesticide contamination.


2020
Ecology Convenes LPWG
Ecology convenes LPWG to develop solutions for remediation of historical orchards.
2021
Ecology Provides Grant
Ecology enters into grant agreement with Chelan County and provides funds for pilot project.
LAPP Begins
2021
Model Remedy
Ecology publishes draft, then final model remedy deailing cleanup options.
2021
Subdivision Remedy
Talos works to locate and purchase clean soil and implement model remedy in common areas.
LAPP Ends

Next Steps

Final Subdivision Approval

2021+

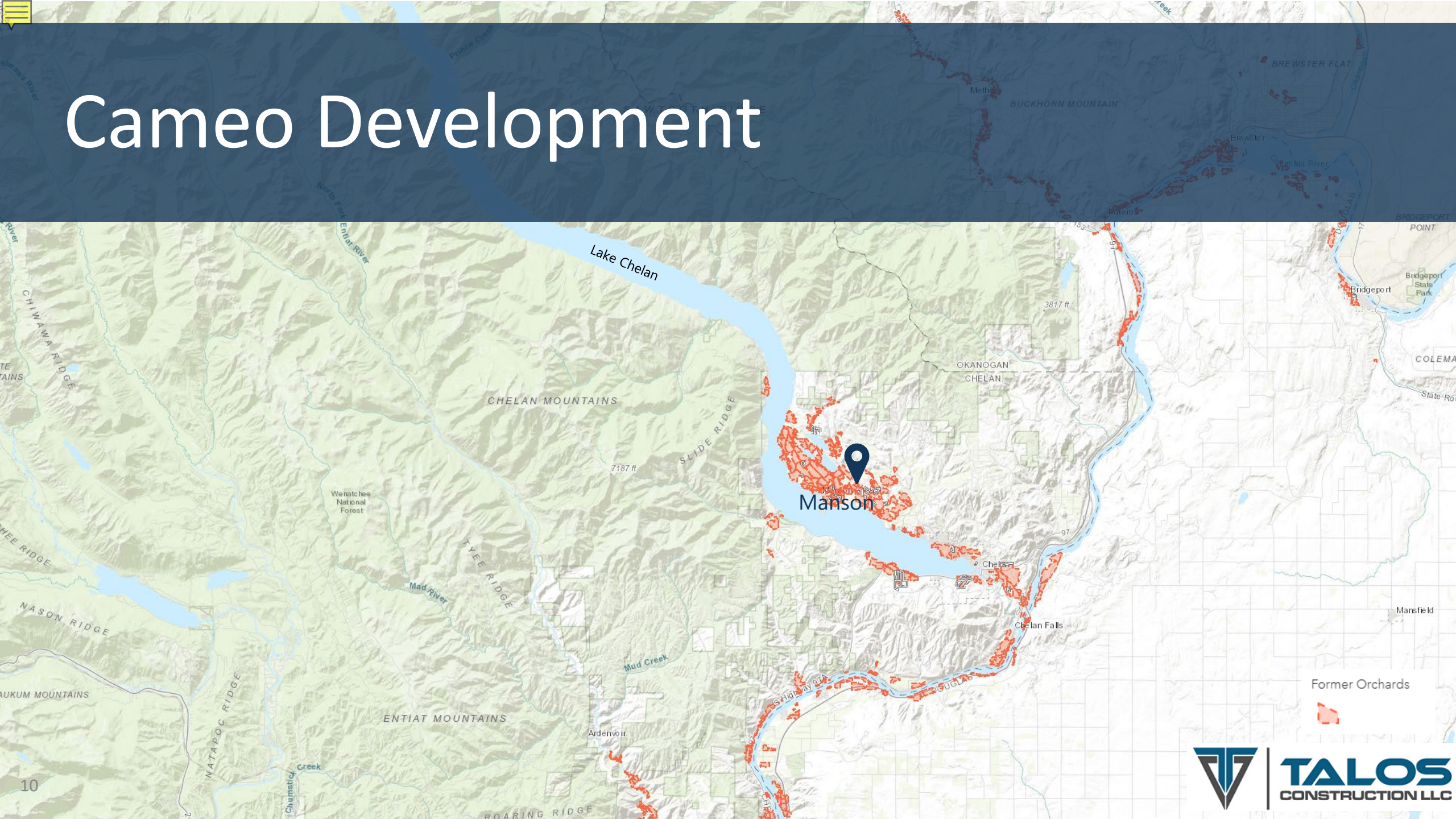
Talos completes all conditions of preliminary approval including roadway, utilities, etc.

Individual Lot Remedy

2021+

Individual lots are remediated as Talos, and other developers build homes and prior to occupancy permit.

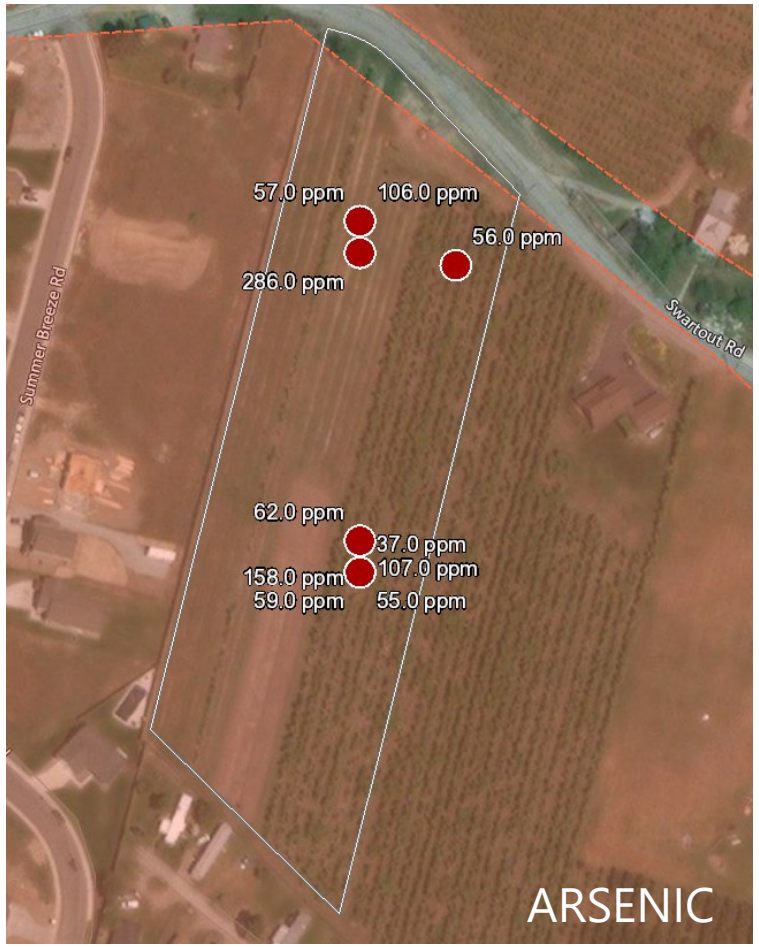
Cameo Development



Cameo Development

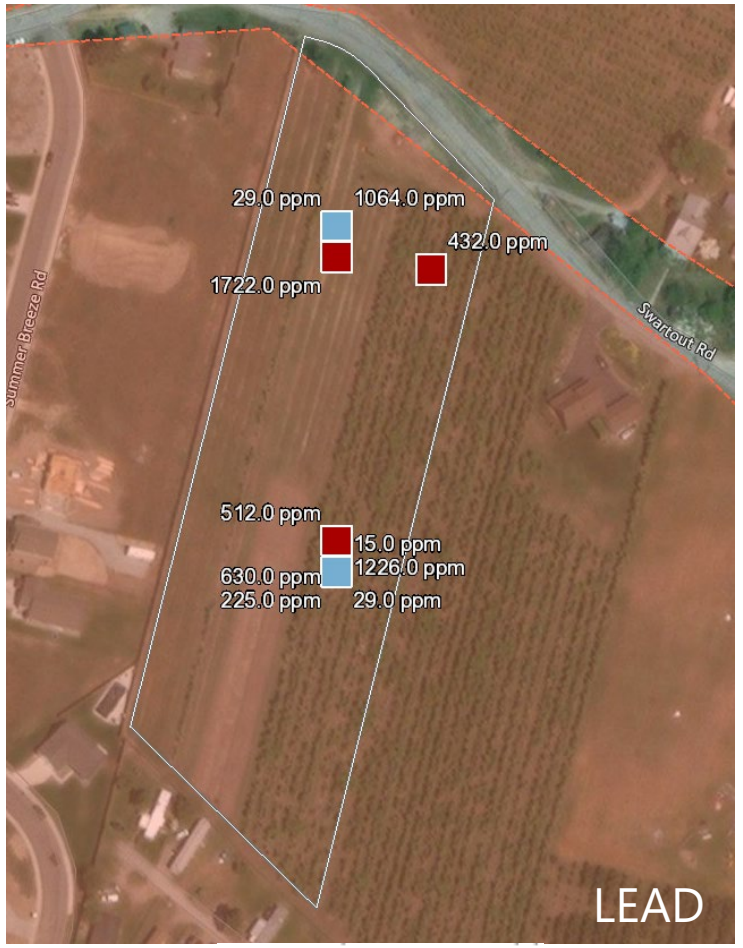
- Talos Construction
- 5-acre property
- 20 lot subdivision

Initial Sampling



> 20 ppm

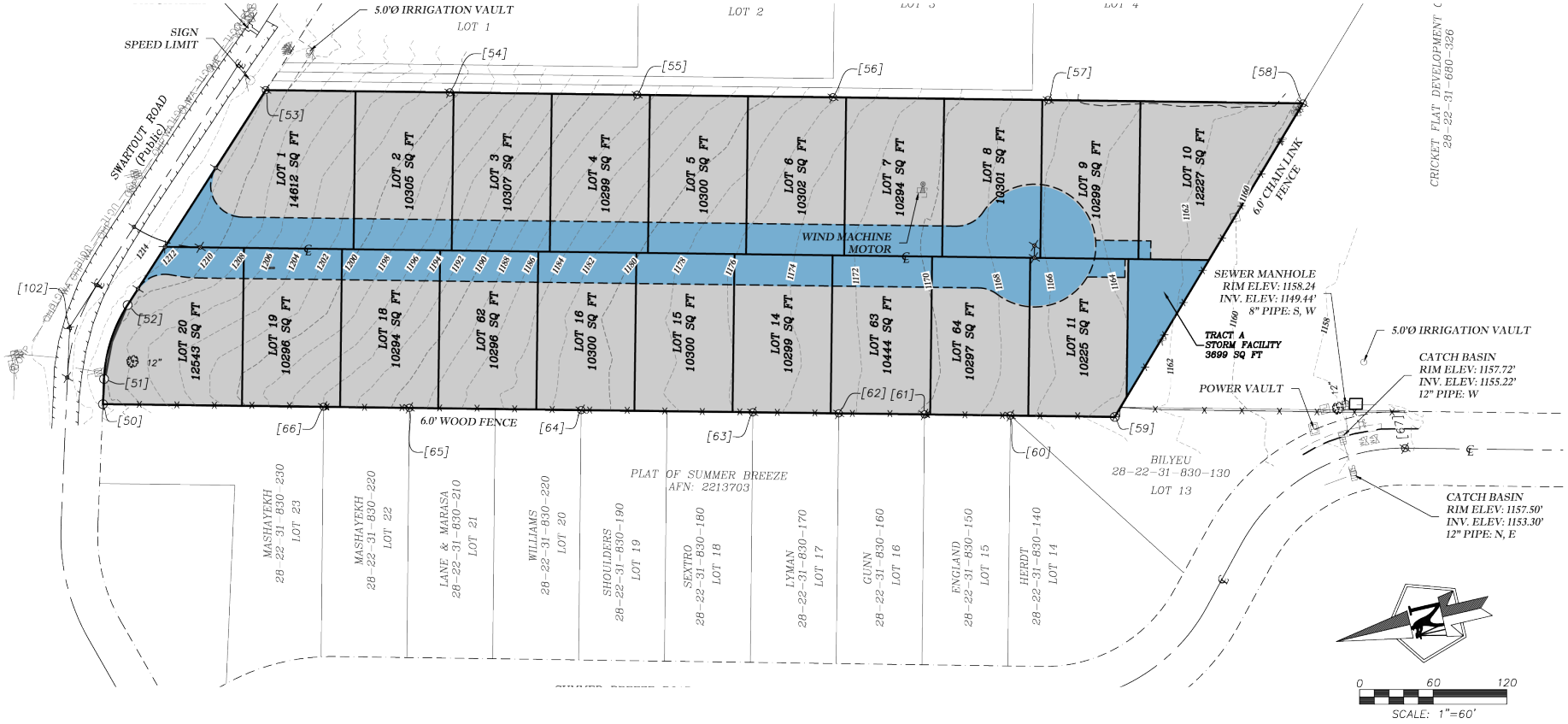
< 20 ppm



> 250 ppm

< 250 ppm

Remedy Timing

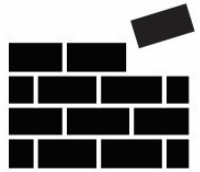


Subdivision Approval

Building/Construction Permit

Model Remedy

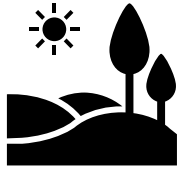

soft


hard

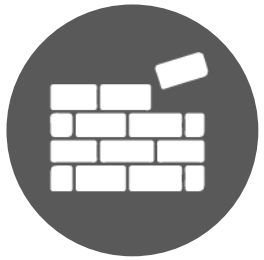
Capping

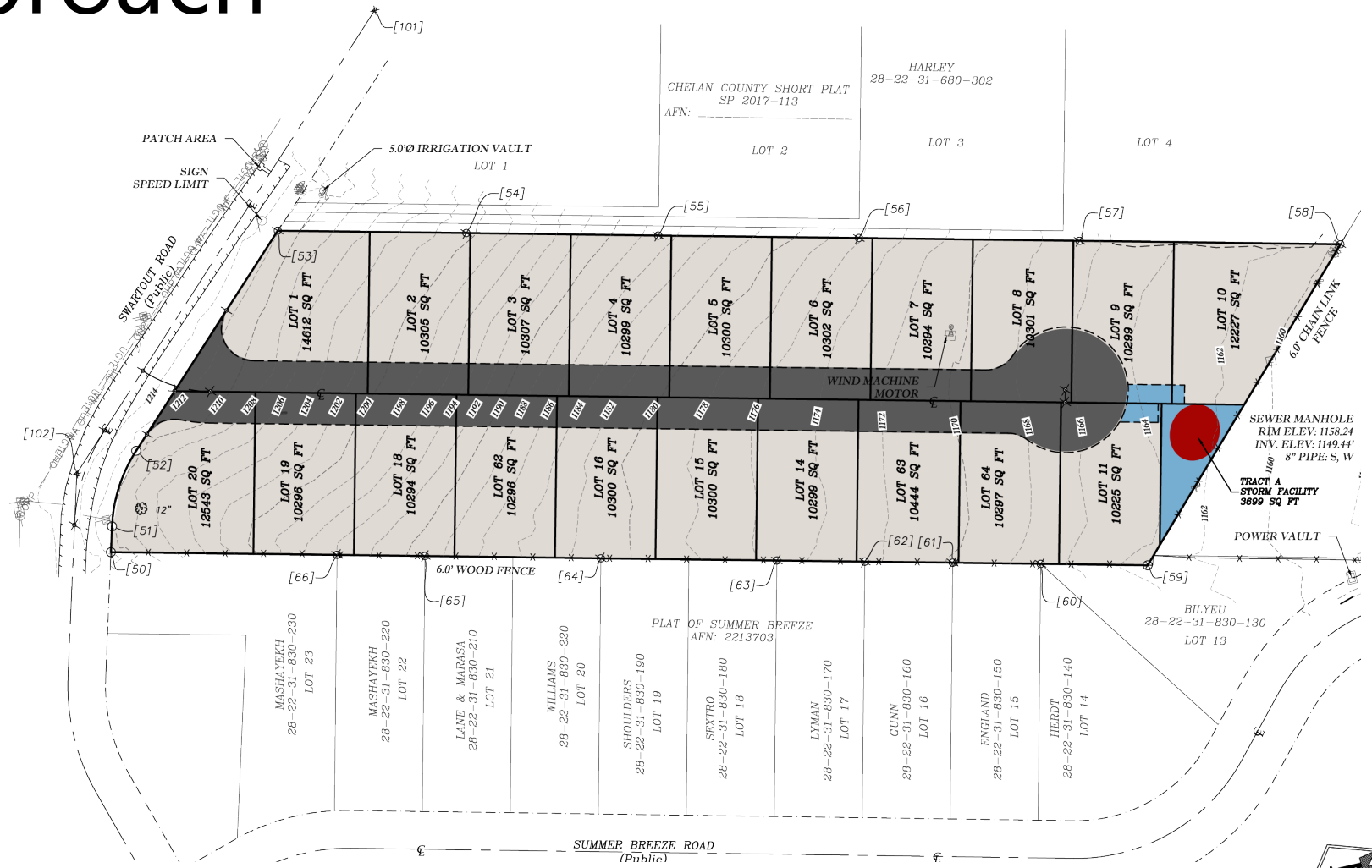

Excavation


Mixing


Consolidation

Remedy Approach





Clean Soil Search

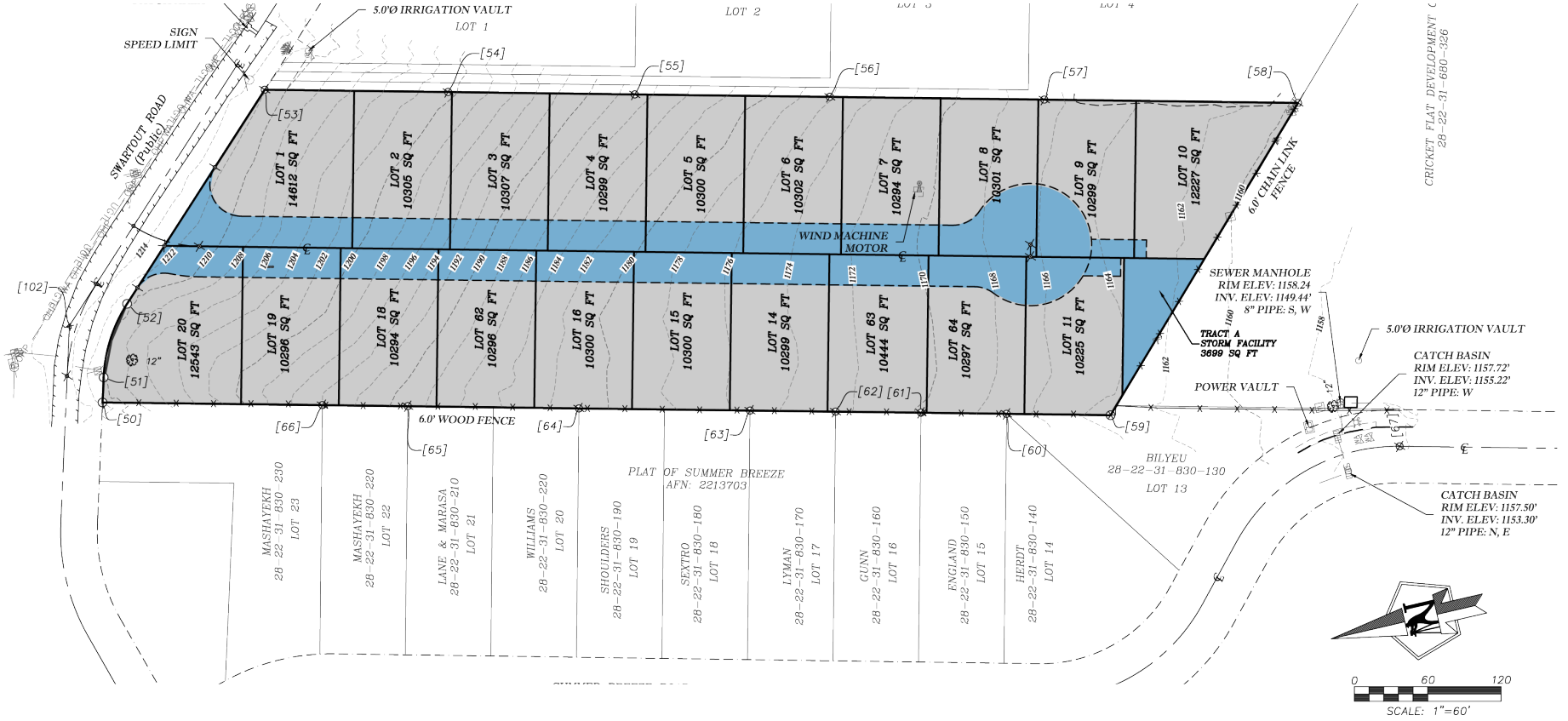
Soil Source Location	Minimum Arsenic Value Detected (ppm)	Maximum Arsenic Value Detected (ppm)	Minimum Lead Value Detected (ppm)	Maximum Lead Value Detected (ppm)	Cost with amendments and Transport ($/cy)
Chelan Sand & Gravel	<9	13	<12	<16	23
CR Sandige	<10	<11	<13	<16	37
Dave's Apple Park	<7	<10	<12	<14	48
Lakeshore Excavation					
Linsey Site	<8	<10	<15	<13	33
Lower Pile	8	**21**	<15	**322**	30
Pit Bottom	<8	**62**	<10	225	34
High Pile	<11	20	14	39	30
Bench	<9	<11	<13	<15	30

Bolded values exceed MTCA Method A cleanup levels of 20 ppm Arsenic and 250 ppm Lead.
"<" means the results are less than the limit of detection

Remediation Cost

Image Credit: nolnet

Remediation Cost Breakdown



Subdivision Approval

Building/Construction Permit

Subdivision Remediation Costs

	Consultant		Talos		Total
Labor and Sampling Costs	Hours	Labor and Equipment Cost	Hours	Labor Cost	
Potential Source Outreach	14	2,753	17	1,694	4,446
Soil Sampling and Analysis	30	7,528	-	-	7,528
Development Agreement	-	-	95	9,982	9,982
Other Consultant Support	6	998	-	-	998
General Coordination	-	-	25	2,121	2,121
Labor and Sampling Total	**50**	**11,278**	**137**	**13,797**	**25,075**

Cap Materials	Quantity	Units	Cost	Units	Total
Soil for stormwater infiltration area	35	CY	20.00	$/cy	700
Soil transport from clean soil source	3	Truck loads (12 cy)	125	$/load	375
Gravel for cap including transportation	28	TN	15.88	$/tn	440
Demarcation layer for gravel area	142	SY	1.50	$/sy	213
Capping Materials Total					**1,728**

Other Costs	Quantity	Units	Cost	Units	Total
Legal Support for Development Agreements					2,000
Total Other Costs					**2,000**

Total Subdivision Remediation Cost	**28,802**

Individual Lot Remediation Costs

Clean Soil Costs	Quantity	Units	Cost	Units	Total	Cost/lot
Amended topsoil for residential lots	2,650	CY	23.23	$/cy	61,552	
Soil transport from clean soil source	221	Truck loads (12 cy)	125.00	$/load	27,604	
Total Clean Soil Cost					**89,156**	**4,458**
Demarcation Layer Costs						
Demarcation fabric	13,041	SY	1.50	$/sy	19,561	
Total Demarcation Layer Cost					**19,561**	**978**
Total Individual Lot Remediation Costs					**108,717**	**5,436**

Summary Costs

SUBDIVISION REMEDIATION COSTS	Total Cost	Cost Per Lot
Labor and Sampling Costs	25,075	1,254
Cap Materials	1,728	86
Other Costs	2,000	100
Total Subdivision Remediation costs	**28,802**	**1,440**

INDIVIDUAL LOT REMEDIATION COSTS		
Clean Soil Costs	89,156	4,458
Demarcation Layer Costs	19,561	978
Total Individual Lot Remediation Costs	**108,717**	**5,436**

Combined Total Remediation Costs	**137,519**	**6,876**

Ecology Grant

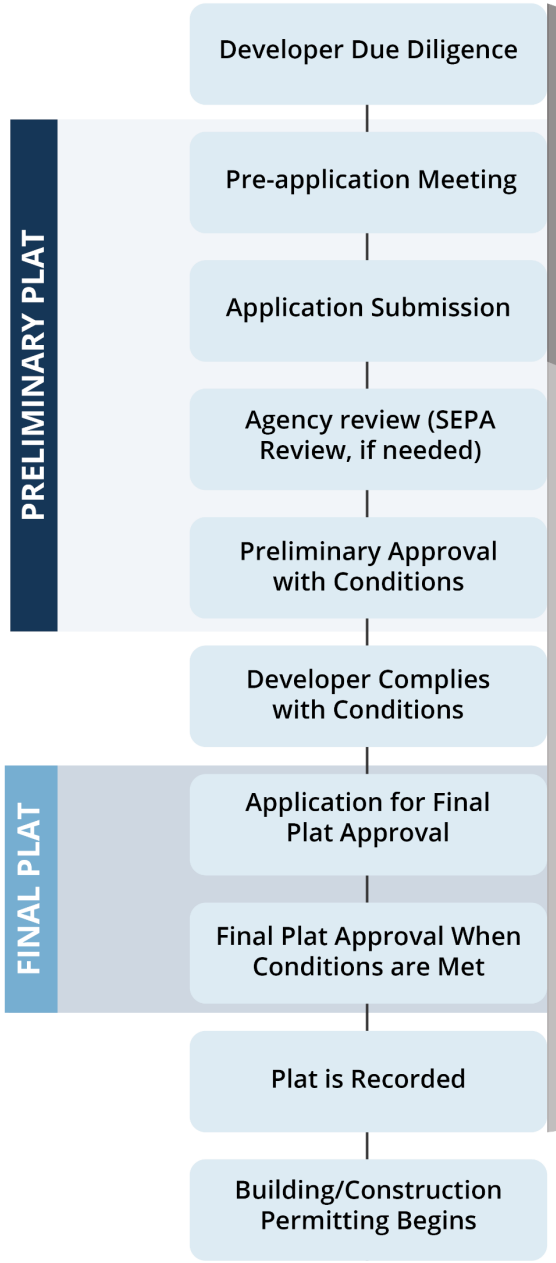
Task Description	Grant Budget
Task 1: Identify, purchase and trasport clean soil to Cameo Site	155,000
Task 2: Additional Cameo Development surface soil testing	7,000
Task 3: Create pilot process, training and outreach materials	63,000
Total	**225,000**

Lessons Learned

Tools and Processes

- Development Agreements
- CC&Rs and Notices to Owners
- Integrating MTCA and Local Land Use Practices

SUBDIVISION PROCESS



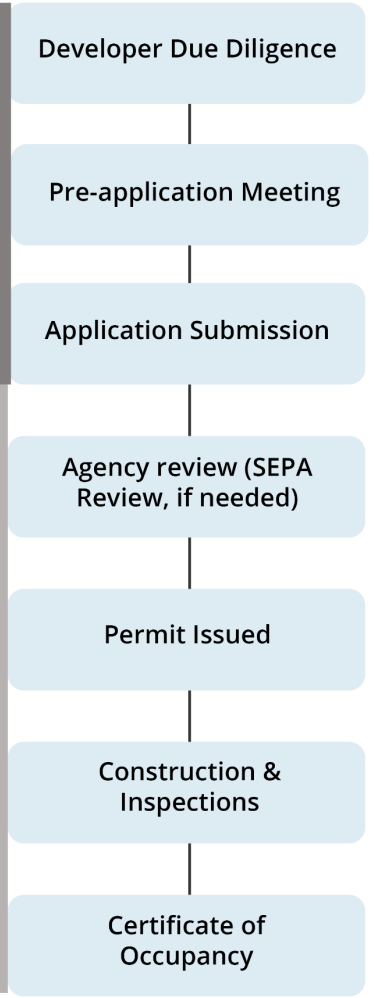
Tools

- Ecology Dirt Alert Web Map*
- Ecology Soil Sampling*
- Outreach and Education Materials
- Ecology Model Remedy*

- Model Developer Agreements
- Model Notice to Owners
- Self-Certification Forms

*Existing tools

BUILDING/CONSTRUCTION PROCESS



Site Planning and Cleanup

- Initial Sampling at the Development Site
- On-site Repository for Contaminated Soil
- Education Related to Construction Practices
- Continue to Follow the Cameo Project

Talos Lesson Learned

- Requirements, Resources, Availability & Capability
  - Understand requirements & Options
  - Resource Alignment

- Advice for future projects

Next Steps

- Soil Bank Feasibility Study
- Model Code Development

QUESTIONS?

COUNTY OF CHELAN