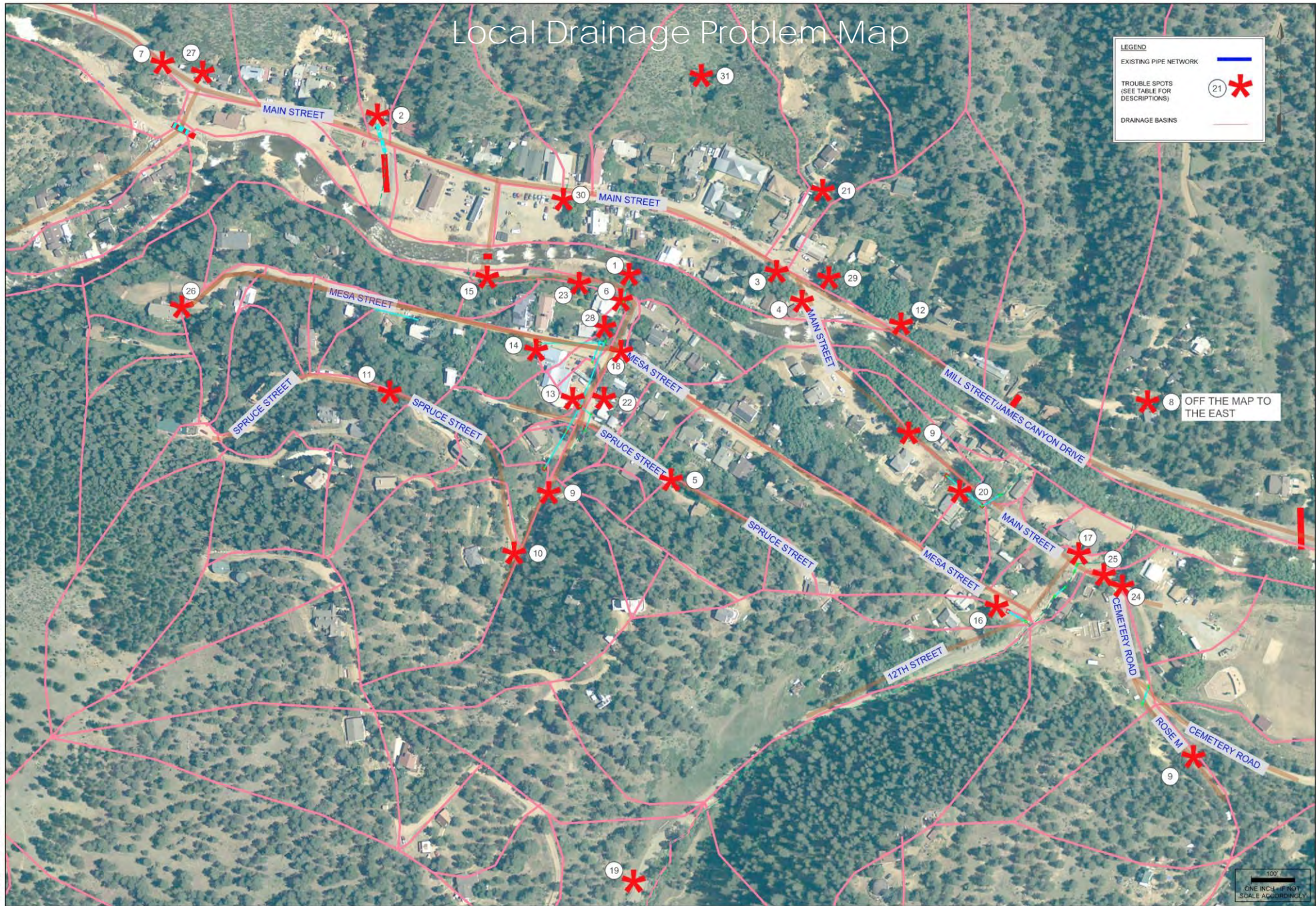


Jamestown Drainage and Stormwater Master Plan



Community Meeting
March 27, 2017

Drawing Name: F:\32-1862.00 JAMESTOWN MASTER PLAN\MAPS\PROBLEM AREAS\PROBLEM AREAS.DWG Monday, March 27, 2017 12:38 PM By: MICHAELSEN, JACLYN



AVRES
ASSOCIATES

COMMUNITY
DRAINAGE PROBLEM AREAS

TOWN OF JAMESTOWN

Revisions	Date

Project Mgr.	
Designed By	
Drawn By	
Approved By	
Date	DATE

PROJECT NO.

DRAWING NO.

1

SHEET OF

Problem Drainage Areas (Determined from the Open House)	
Number	Description of Drainage Problem
1	The flow from 16th Street discharges along the south bank of James Creek, causing severe erosion problems.
2	The drainage along the north side of Main Street does not easily get into the Howlett Gulch culvert.
3	runoff from the washing of the Fire Trucks drain through 58 Mill Street.
4	How will the raising of Main Street bridge impact drainage at 58 Mill Street?
5	"Spruce Lake": Every time it rains or snows a "lake" appears. The ponded area overtops and flows to Mesa Street. Sandbags are being used to prevent Jan Reid's house (downstream of the Spruce Street on Mesa Street) from being flooded on a regular basis.
6	The inlet at the end of 16th Street has been retrofitted to collect storm runoff and has become unsafe to the public.
7	The flow on Overland Road sheet flows along the road. The slope of the road is very steep and the runoff flows into town.
8	There is a 24-inch culvert at the base of Buffalo Gulch. 120ft of the ditch, from the culvert to the creek, was poorly constructed and does not drain. The house nearby runs four (4) dewatering pumps at a time to keep the house dry.
9	Crown on the road was removed after flood when the streets were repaired and regraded. This changes the drainage pattern to the roadside ditches and nearby inlets. This enhances flooding problems as the street does not direct the runoff to the ditches along the road way. The ditches do not collect runoff since the improvements have been made. This problem area occurs throughout the town (there are 3 example locations on the map).
10	Drainage problems occur at the southern end of 16th Street.
11	The culverts on Spruce are clogged and crushed.
12	Road drainage runs along the north side of Main Street and thru the front yard of 58 Mill Street until it cuts across 15th Street (a dirt road). This damages the road until it reaches a culvert that diverts the flow under the road to James Creek.
13	At the school runoff is collected in an inlet. This inlet gets clogged easily and runoff overtops the sump condition and into the school yard, ultimately to the school. The inlet does not appear to collect any local drainage, only flow from the upstream culvert that discharges overland to the grate.
14	The inlet along Mesa Street is clogged and easily filled with ice and debris.
15	Runoff is being collected at the end of Anderson Hill Street, causing potholes.
16	The existing inlets at the eastern end of Mesa Street does not collect runoff. If the inlet collected runoff then the flooding at Main Street and 12th could be minimized.
17	At the downstream end of Gillespie Gulch is a house. This house was destroyed by the flows in Gillespie Gulch during the flood. The flow from Gillespie Gulch is concentrated flow. The concentrated flow causes drainage problems. Gillespie Gulch plans are intended to remedy this flooding problem.
18	The runoff travels from the school to 16th Street to Mesa Street. The runoff does not travel to the drainage swale downstream of Mesa Street. The flows down Mesa Street are not distributed, and not concentrated to one point. This enhances the drainage problems.
19	There are drainage issues at the top of drainage way #8.
20	The inlets on Lower Main are supposed to collect drainage from the intersection. The inlets do not collect runoff. The ditch/drainage wat where the pipes discharge to does not have a positive slope, therefore runoff pools in the ditch causing an unwanted mosquito habitat.
21	There is a lot of runoff that travels down Skunk Tunnel. The runoff carries debris from high up in the basin. The road base gets washed away when it rains.

Problem Drainage Areas (Determined from the Open House)	
Number	Description of Drainage Problem
22	There is a lot of runoff that concentrates at the end of 16th Street, just upstream of Steve's house. The inlet at the school gets clogged easily. A grate was added after the flood. Inlets in the mountains become clogged easily. The ditch on 16th Street gets clogged often and does not collect runoff.
23	A stone wall has been constructed along the edge of the road. At the edge of the wall is a drainage ditch. Since Anderson Hill has a very steep drop off on the opposite side of the street, cars ride close to the wall/ditch. Since the street is very narrow, the cars ride too close to the ditch and occasionally the cars get a wheel stuck in the ditch. The car then is dragged across the wall, scrapping the side of the car.
24	The drainage at the end of Slaughter House Road (Rose M) washes to the end of the street, causing massive erosion problems and flooding. The drainage ditch along the road is located on the high side of the street.
25	The street is flat, runoff ponds often causing potholes.
26	The western end of Mesa Street is steep, causing clogging of inlets and culverts. The side ditches are repeatedly filled with sediment and becomes rutted with any rain, causing issues downstream.
27	The drainage and culvert on the west side of the property clogs often if it is not kept clean. The fire area drains directly to the culvert, clogging it often.
28	The drainage ditch along 16th Street is often clogged. This ditch is deep, and has trapped cars. A drainage pathway has been cut through the yard of the residence at 100 Mesa Street.
29	The ditch to the east of the Fire House causes access issues. Cars bottom out on the ditch. A culvert should be constructed.
30	Flows from the drainage pathway behind the Merc flow to Main Street, over the road and ultimately to the creek. Erosion occurs on Main Street and the downstream pathway.
31	There is a large offsite drainage area from the Hills to the North of the town that drains to Main Street (between Ward and Lower Main Street).
32	Hittle Driveway debris flow issue
33	Potential mining contamination source

Delineation of Drainage Basins

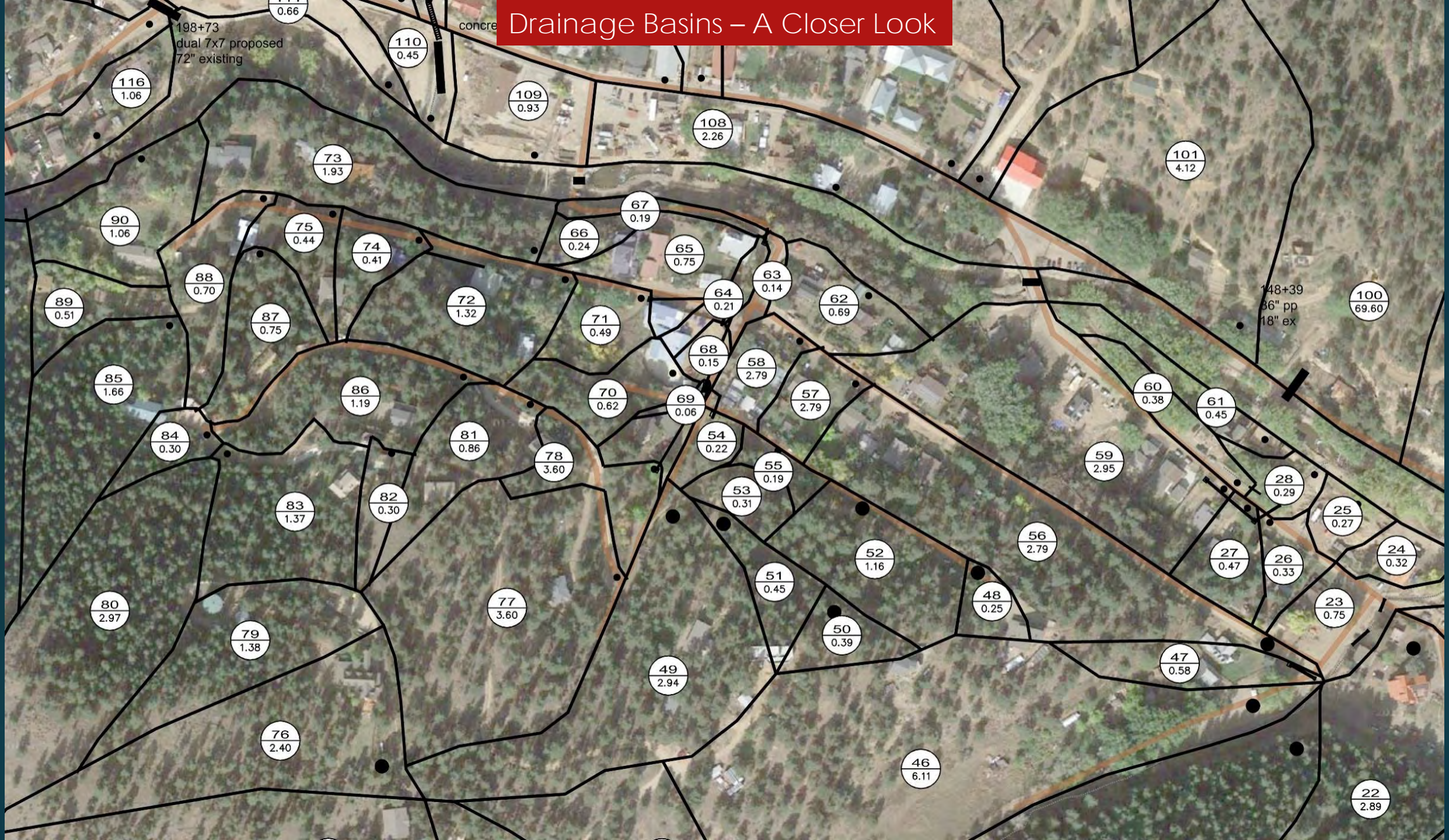


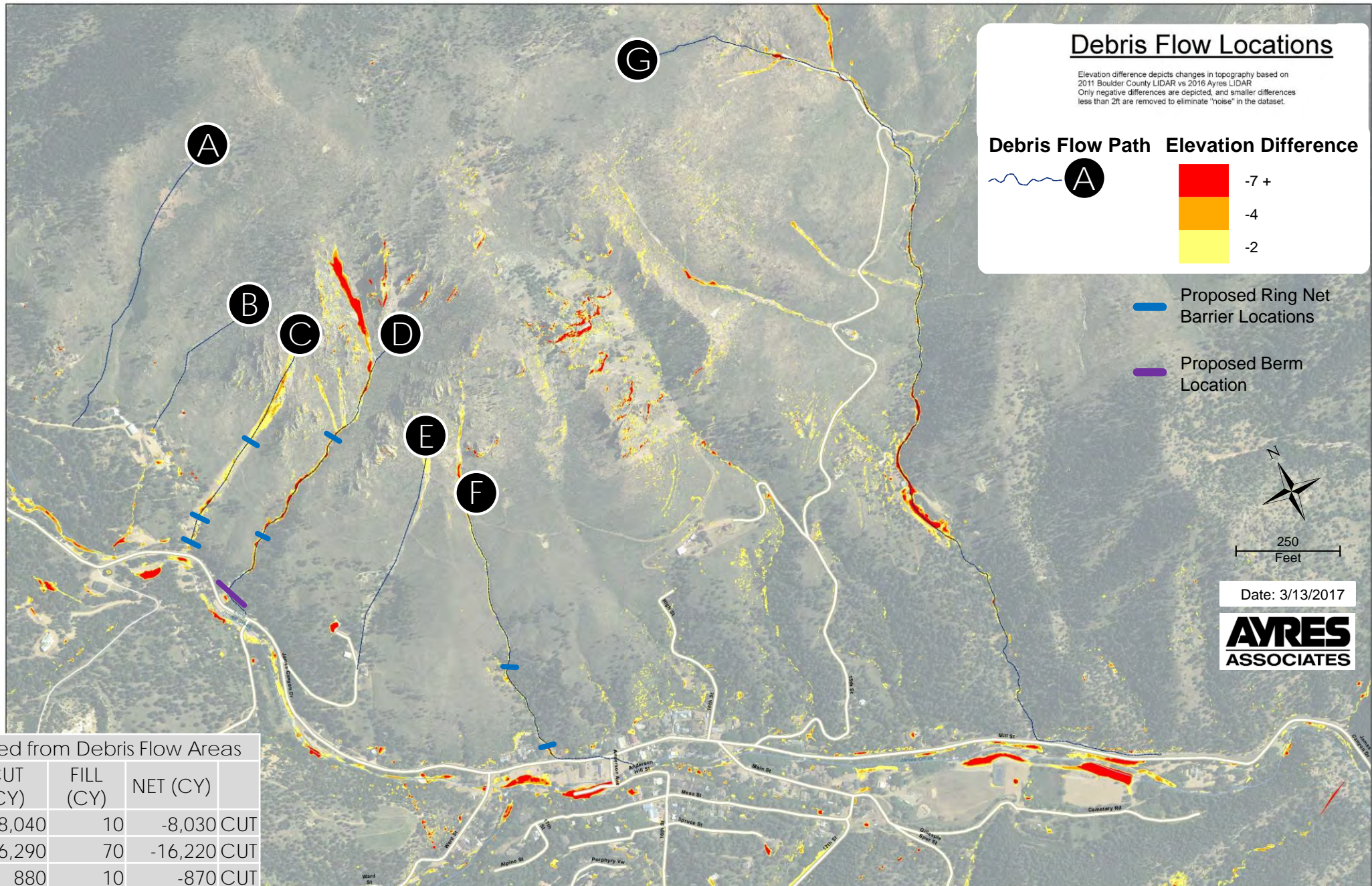
Drainage Basins – A Closer Look

198+73
dual 7x7 proposed
72" existing

concrete

148+39
36" pp
18" ex





Material Removed from Debris Flow Areas				
	CUT (CY)	FILL (CY)	NET (CY)	
Drainage C	8,040	10	-8,030	CUT
Drainage D	16,290	70	-16,220	CUT
Drainage E	880	10	-870	CUT
Drainage F	4,870	20	-4,850	CUT

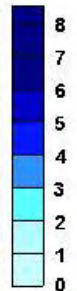


2D Modeling of the Creeks

Water Depth Maps

Shear Stress Maps

Water Depth (ft)



Sample Water Depth Map

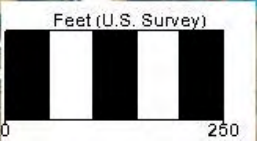
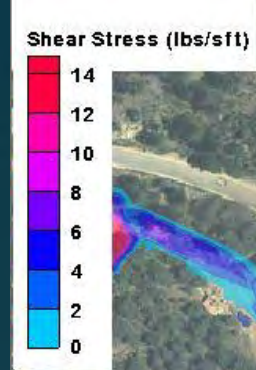
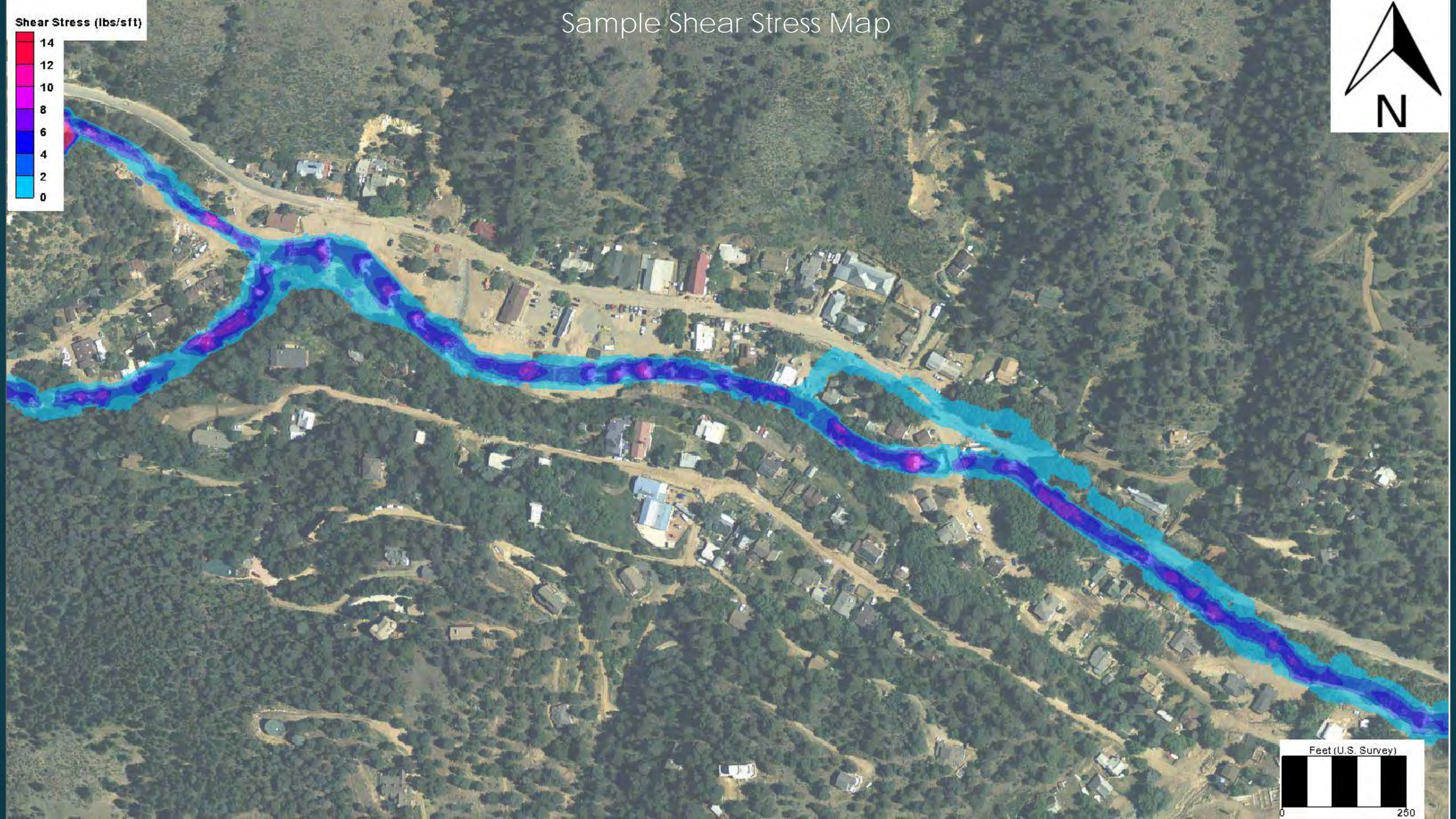


Shear Stress

Pounds per square foot – Erosive force

Lbs/ft ²	Material
0.1	Fine gravels
0.7	2" cobble
1.5	Long native grasses
2	6" cobble
5	12" Riprap
10	24" Riprap

Sample Shear Stress Map



Prioritization Criteria

Life Safety – Does it threaten loss of life?

Structure Damage – Does it cause structural damage?

Flooding – Does flooding inhibit access?

Maintenance – What is the current maintenance effort?

Efficiency – How far reaching are the project benefits?

Grant Funding Potential – Is grant funding an option?

Maintenance Cost – How much does it cost to maintain?

Construction Cost – How much does it cost to construct?

Project Prioritization Criteria Matrix (DRAFT)

Criteria	Score			Project Score	Importance Factor	Weighted Score	Range
	High (5)	Medium (3)	Low (1)				
Life safety	Significant threat to loss of life	Moderate threat to loss of life	Minimal threat to loss of life	3	5	15	0-25
Structure Damage	Significant threat of property damage	Moderate threat of property damage	Minimal threat to property damage	3	4	12	0-20
Flooding	Impacts emergency access	Impacts roadway access	Impacts driveway access	3	4	12	0-20
Maintenance	After every storm event	Several times per year	Annual or less	3	3	9	0-15
Efficiency	Project has impact on larger area of town	Project addresses 2-3 drainage problems	Project addresses one drainage problem	1	3	3	0-15
Grant Funding Potential	High potential to receive funding	Medium potential to receive funding	Low potential to receive funding	5	2	10	0-10
Maintenance Cost	Low cost	Medium Cost	High Cost	5	2	10	0-10
Construction Cost	Low cost	Medium Cost	High Cost	1	1	1	0-5

Water Quality Factor				
1.0	Does not improve WQ	Weighted Score	72	0-120
1.1	Improves WQ with significant maintenance requirements	Water Quality Factor	1.2	1.0 - 1.2
1.2	Improves WQ with low maintenance requirements	Overall Score	86	0-144

Project Prioritization Criteria Matrix (DRAFT)

Criteria	Score			Project Score	Importance Factor	Weighted Score	Range
	High (5)	Medium (3)	Low (1)				
Life safety	Significant threat to loss of life	Moderate threat to loss of life	Minimal threat to loss of life		5		0-25
Structure Damage	Significant threat of property damage	Moderate threat of property damage	Minimal threat to property damage		4		0-20
Flooding	Impacts emergency access	Impacts roadway access	Impacts driveway access		4		0-20
Maintenance	After every storm event	Several times per year	Annual or less		3		0-15
Efficiency	Project has impact on larger area of town	Project addresses 2-3 drainage problems	Project addresses one drainage problem		3		0-15
Grant Funding Potential	High potential to receive funding	Medium potential to receive funding	Low potential to receive funding		2		0-10
Maintenance Cost	Low cost	Medium Cost	High Cost		2		0-10
Construction Cost	Low cost	Medium Cost	High Cost		1		0-5

Water Quality Factor							
1.0	Does not improve WQ				Weighted Score		0-120
1.1	Improves WQ with significant maintenance requirements				Water Quality Factor		1.0 - 1.2
1.2	Improves WQ with low maintenance requirements				Overall Score		0-144

Schedule



Jan 2017 - Receive LiDAR topographic data

Jan - Apr 2017 - Drainage assessment - Develop list of drainage issues and potential solutions

Feb – Apr 2017 - Stormwater management assessment

May 2017 - Prioritize and design proposed solutions

June 2017 - Identify funding options

July 2017 - Final Master Plan