

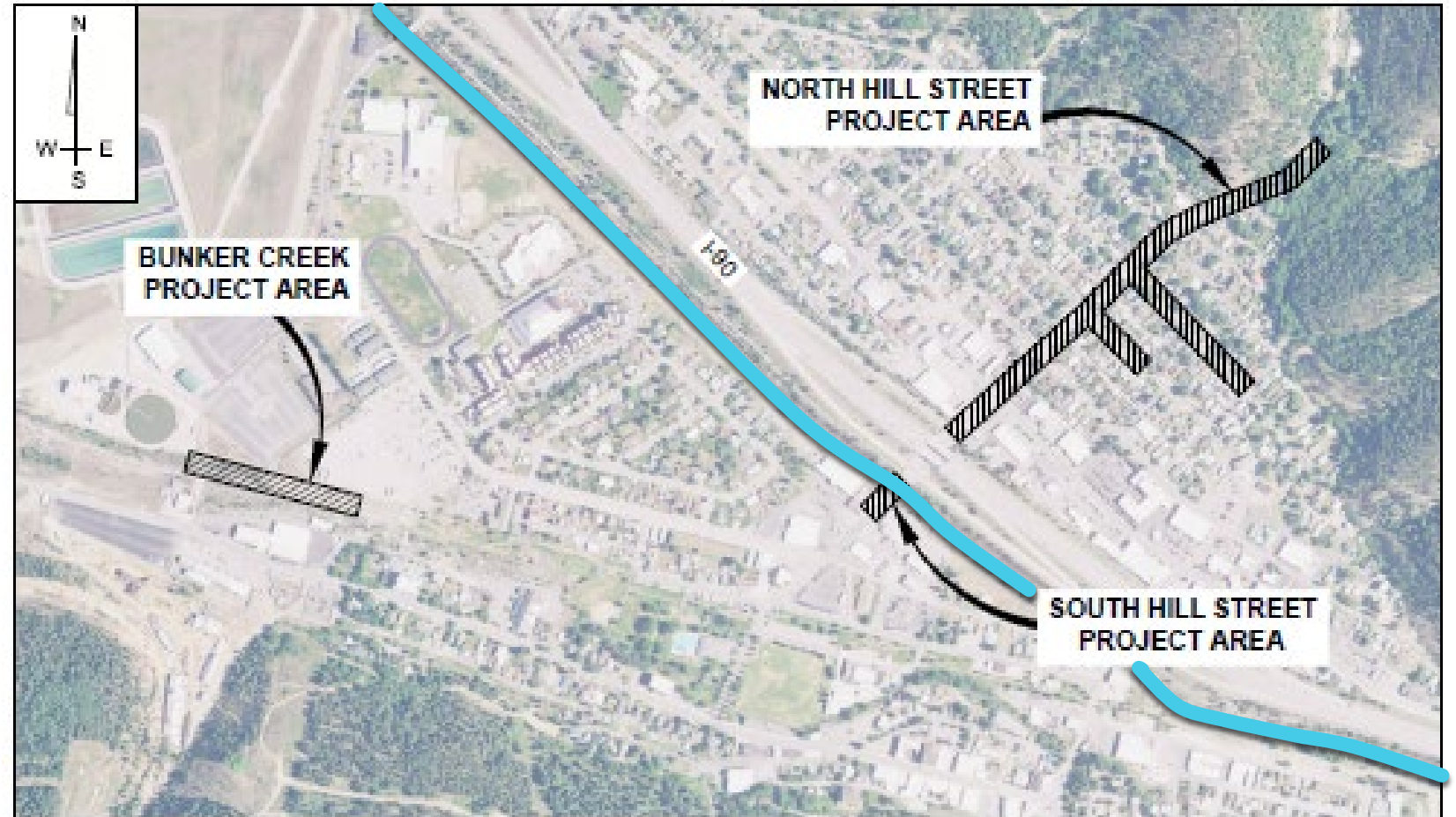


KELLOGG STORM WATER TREATMENT

LEADING IDAHO FUNDING
PHOSPHOROUS REMOVAL
SEPTEMBER 8, 2022
F. CASSIDY

LOCATION

- Kellogg, ID
- All surface storm water feeds the South Fork of the Coeur d'Alene River



LOCATION MAP

SCALE: 1" = 1000'

BUNKER CREEK CHANNEL

- ~750' of open channel
- Remove 200' of buried pipe
- Install better sized culvert under bike trail
- Open existing channel from <2' to 20' bottom
- Plant native grasses and bushes to shade stream
- Increase infiltration area by 10X

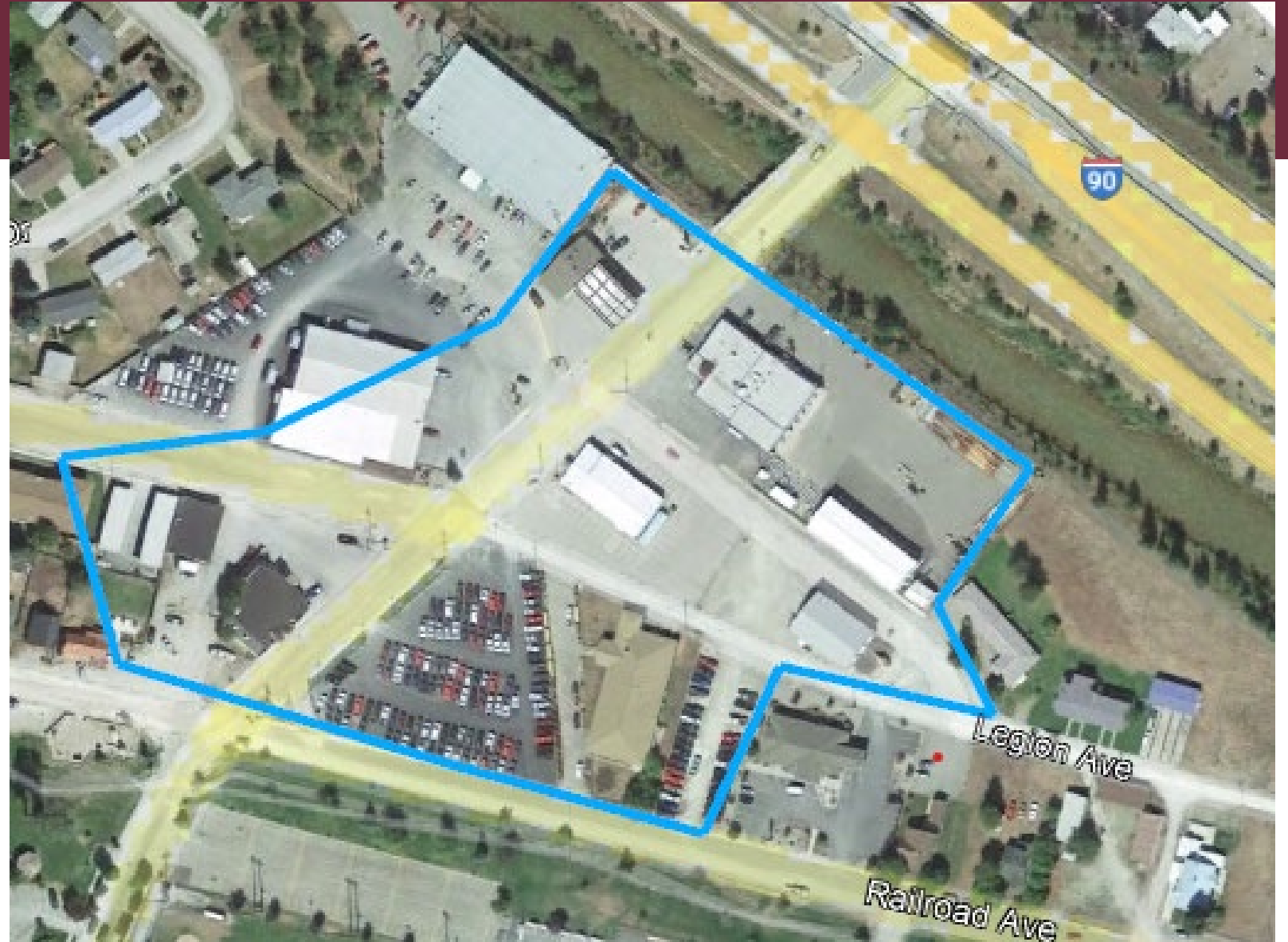


BUNKER CREEK



SOUTH HILL STREET

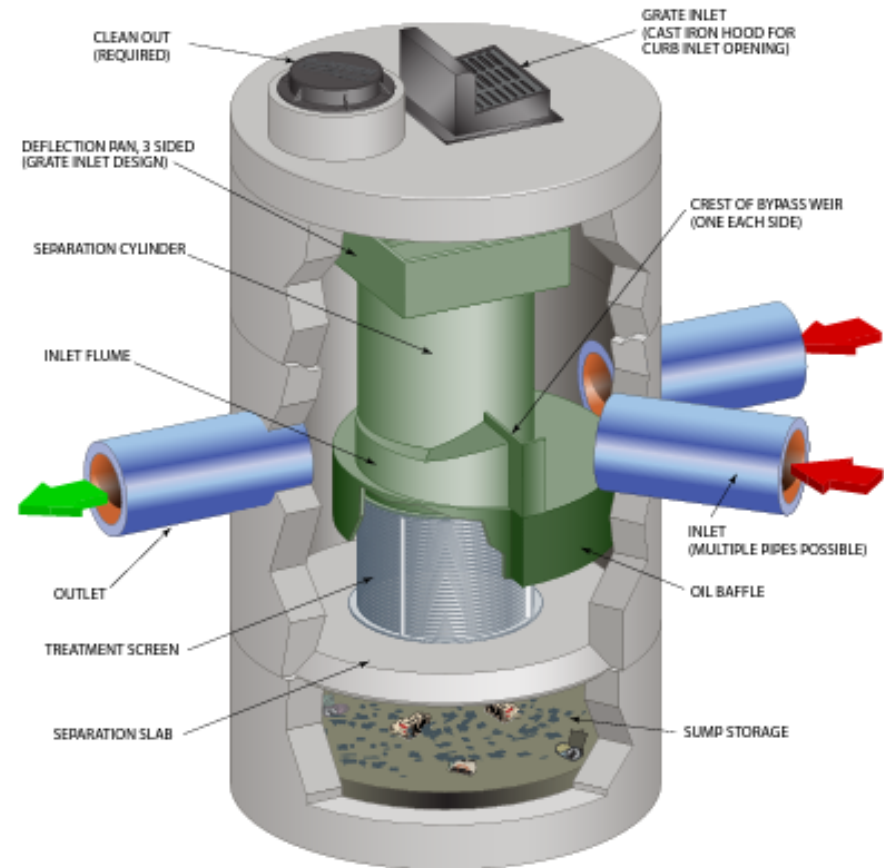
- Challenges –
 - Limited footprint/ROW
 - Seasonal flows
 - Minimal grade change
 - Nearly 100% impervious
 - Storm water pipes and manholes installed <10yrs ago with new pavement



SOUTH HILL STREET

CDS[®] Advantages

- Grate inlet option available
- Internal bypass weir
- Accepts multiple inlets at a variety of angles
- Advanced hydrodynamic separator
- Captures and retains 100% of floatables and neutrally buoyant debris 4.7 mm or larger
- Indirect screening capability keeps screen from clogging
- Retention of all captured pollutants, even at high flows
- Performance verified by NJCAT, WA Ecology, and ETV Canada

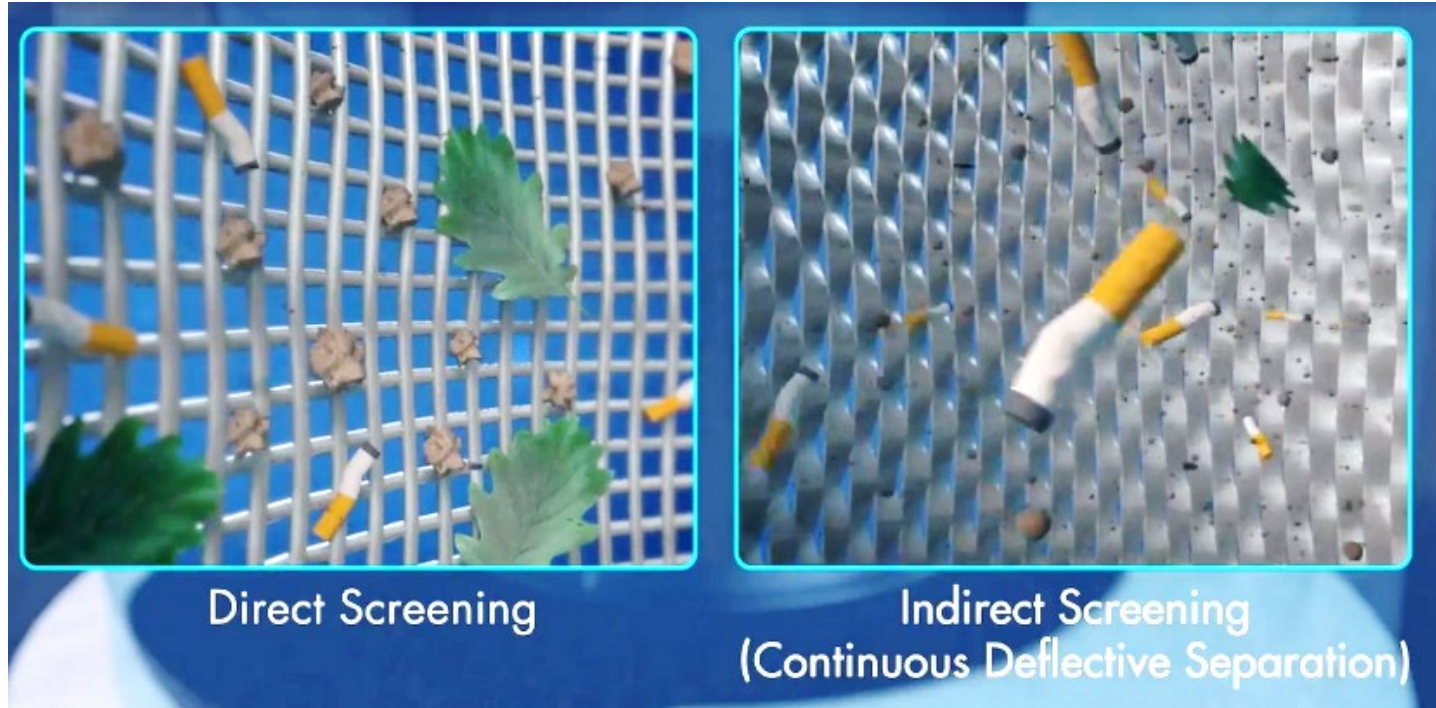


Learn More:

www.ContechES.com/cds

SOUTH HILL STREET – CDS TECHNOLOGY

Bypass for high flow with no loss of captured sediment, floatables or hydrocarbons

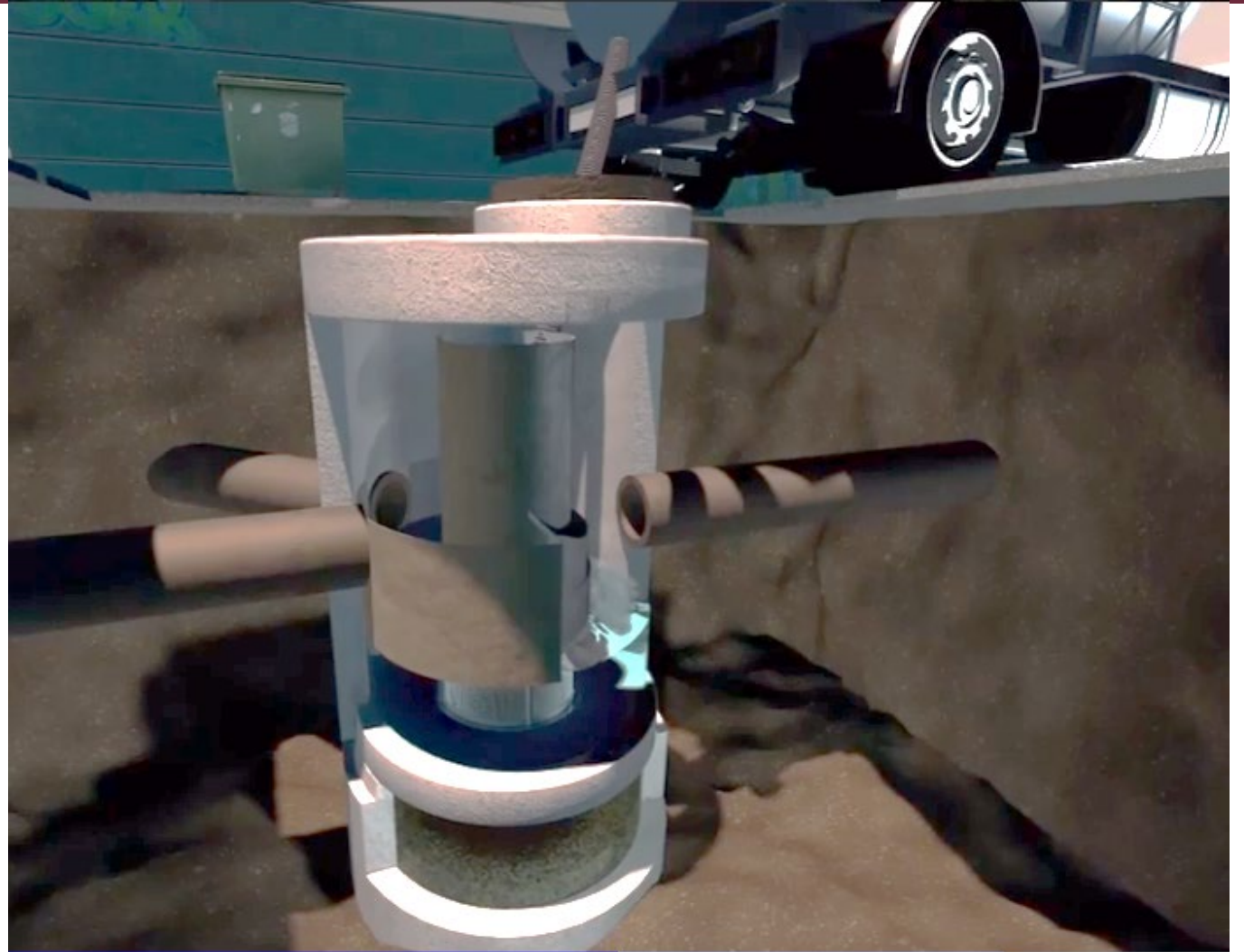


No clogged screens



SOUTH HILL STREET – CDS MAINTENANCE

- Simple clean outs, 2X a year
- Vactor truck to remove sediment, hydrocarbons and floatables
- No confined space entry required



NORTH KELLOGG

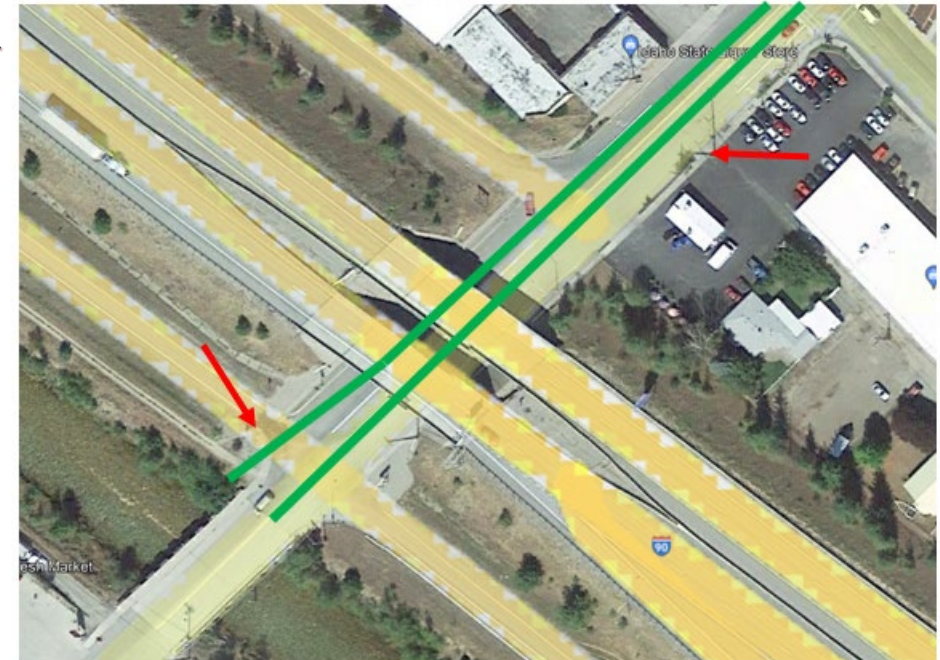
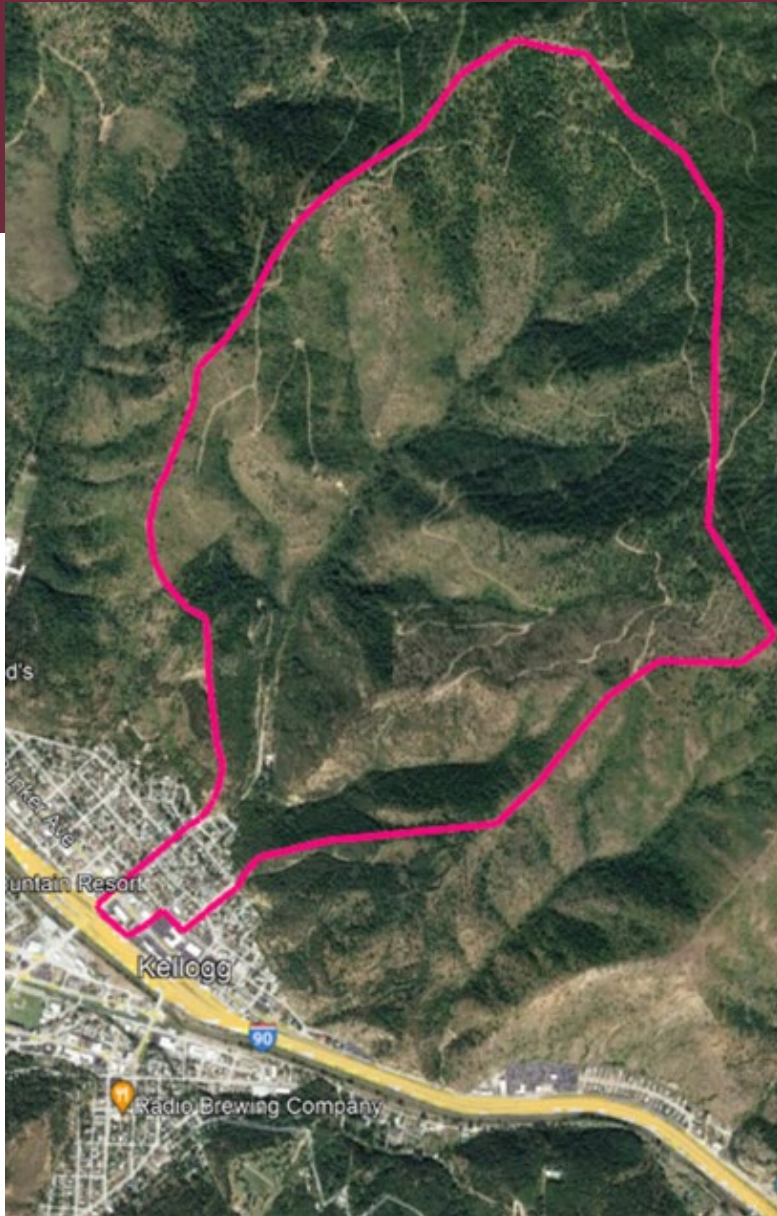
~930 Acres of Forest - 10% Impervious

~350lbs/yr Phosphorous*

~45 Acres of Residential - 80% Impervious

~140lbs/yr Phosphorous*

*Calculated using Minnesota Stormwater Manual equations



NORTH KELLOGG

■ Challenges

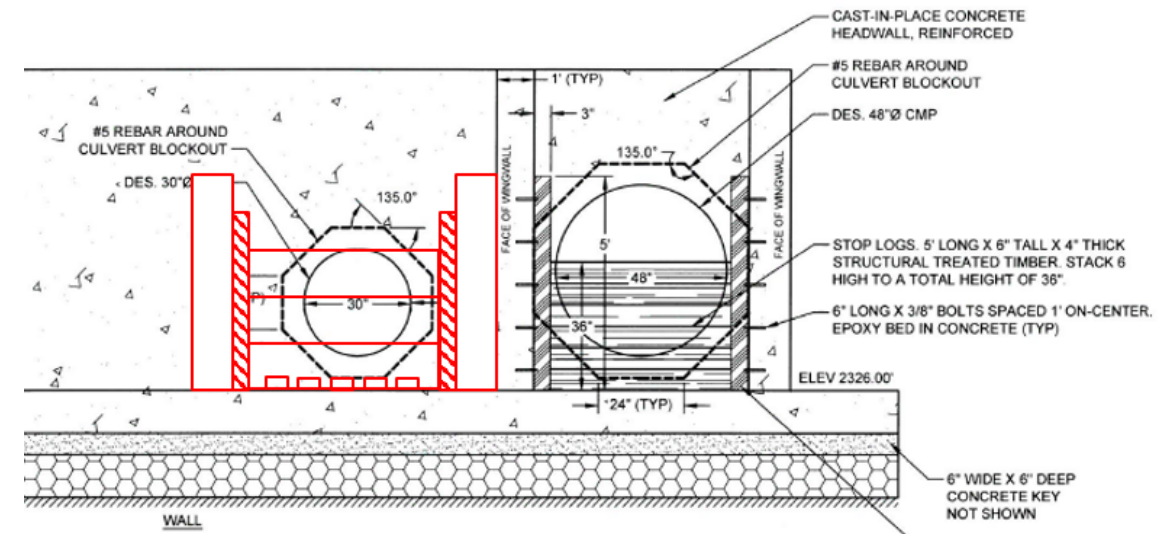
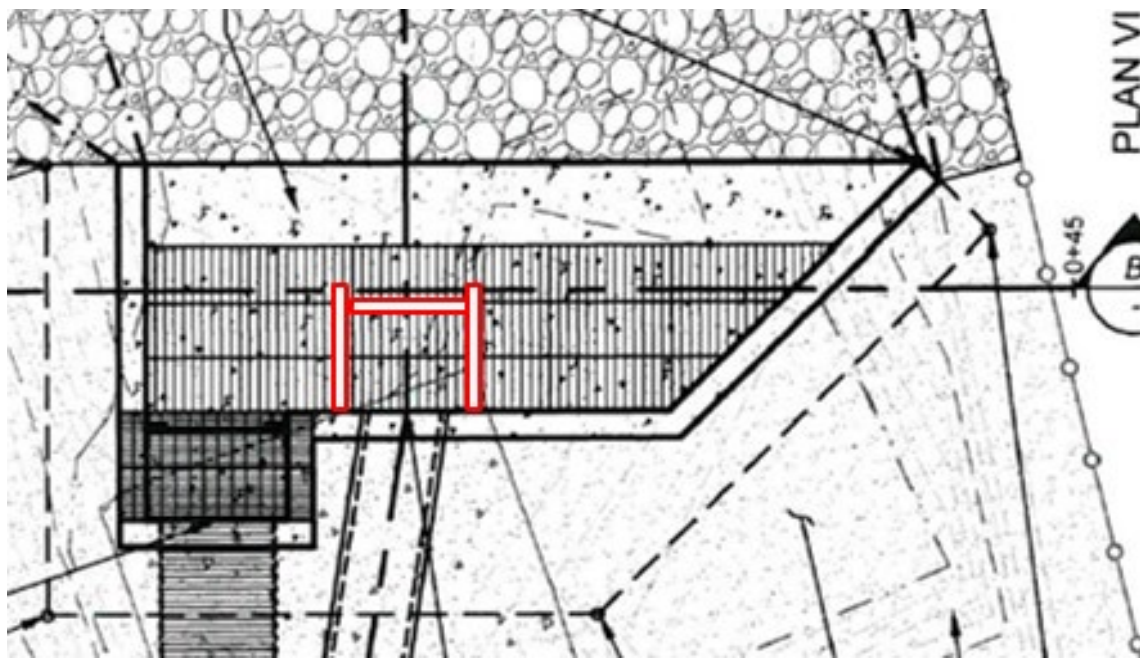
- Multiple Utilities in the area
- ITD ROW
- Current overpass replacement work in Kellogg
- Bigger project needed in the area
- Larger flow rates



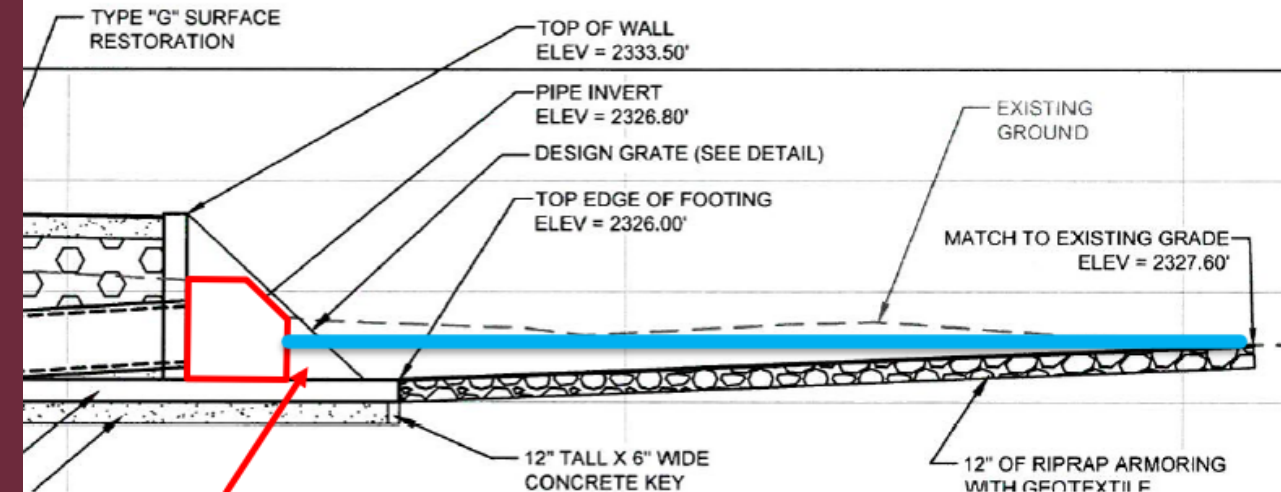


Current Inlet Structure

All run-off from north of structure is untreated



- Italian Gulch existing structure modification:
 - Treat prior to entering 30" concrete pipe
 - Add concrete walls, weir boards and hardware
- Slows run off allowing more infiltration prior to discharge to SFCDR
 - Treats 100% of infiltrated water
 - 60% of all runoff infiltrates (estimated)



1.6' of retained water, ~1,300CF of storage, slowed discharge to SFCDR



INLETS (19 ALONG NORTH HILL ST.)

- Most inlets ready for install
- 7 total rectangular – some are not able to use this tech (see picture, 13A – near Humdinger)
- 12 total circular – all (that opened) appear ready for install
- 18 locations account for 97% of urban flow

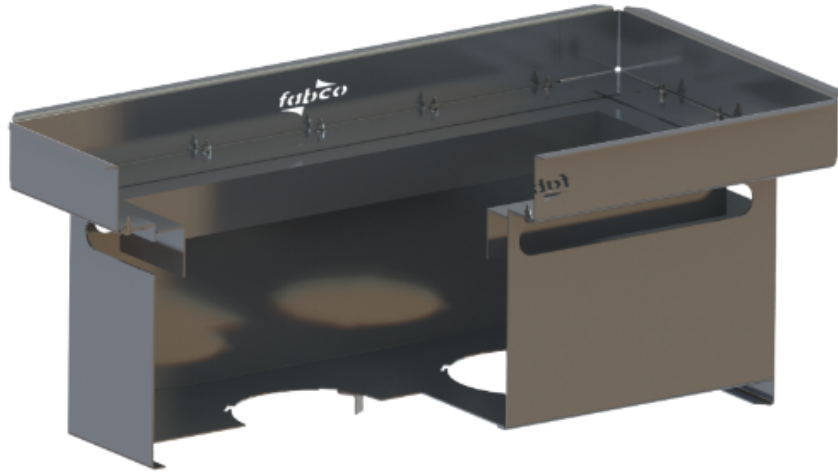
STORMBASIN CARTRIDGE BASED CATCH BASIN INSERT FILTER SYSTEM

- Cartridge based inlet stormwater filtration process for treatment of specific pollutants, sediments, trash/debris, NUTRIENTS, coliform bacteria, Oil/grease and heavy metals
- Produced by Fabco Industries



- StormBasin Plus Series
 - Basin captures all the water which passes through the cartridge filter and exits the basin
 - Basin provides ample storage for solid materials
 - Features a unique bypass to reduce the potential for flooding during peak storm events while still retaining the stored sediment and debris.

StormBasin PLUS Cartridge Based Inlet Filtration System



StormBasin PLUS Model

- Full welded **aluminum construction** suitable for extreme conditions or heavy-duty commercial use.
- **Large volume** welded aluminum collection basin.
- **Custom sizes and filter configurations** are available.
- Adjustable slotted frame with **2" adjustment range (X & Y)** lets you adjust the filter size to fit real inlet dimensions and irregularities.
- **Protected bypass** keeps sediments and trash safely stored, even during extreme rain events.

FabPhos Nutrient & Phosphorus Stormwater Filter Treatment Technology

FABPHOS has proven to be **capable of reducing phosphorous levels by up to 80%**

Benefits of FabPhos Nutrient & Phosphorus Stormwater Filter Treatment

- Proven effectiveness under rigorous field conditions
- Proprietary filter media provides enormous surface area without using small particles which can severely restrict flow, blind easily and can release fines
- Ability to bind large quantities of Phosphate permanently to its surface without negatively influencing pH or other the water quality factors
- Non-hazardous and non-biodegradable



9718-6

NUTRIENTS CARTRIDGE

Uses proprietary FABPHOS media for nutrients. Highly effective on the critical dissolved ortho-phosphates. Helps reduce algae blooms.

GREEN

MAINTENANCE

- Italian Gulch Head Wall
 - Additional weir boards to check during routine maintenance checks – same operation as existing boards.
 - Add boards in high flow to slow run off, extras can be removed or left in place during low flow.
- Inlet Inserts
 - Vacuum out boxes 2-3 times annually recommended
 - Change filter annually (less if not clogged, or still seeing results)
 - 5 years of filters included in estimate – depending on Cities storage capacity



QUESTIONS