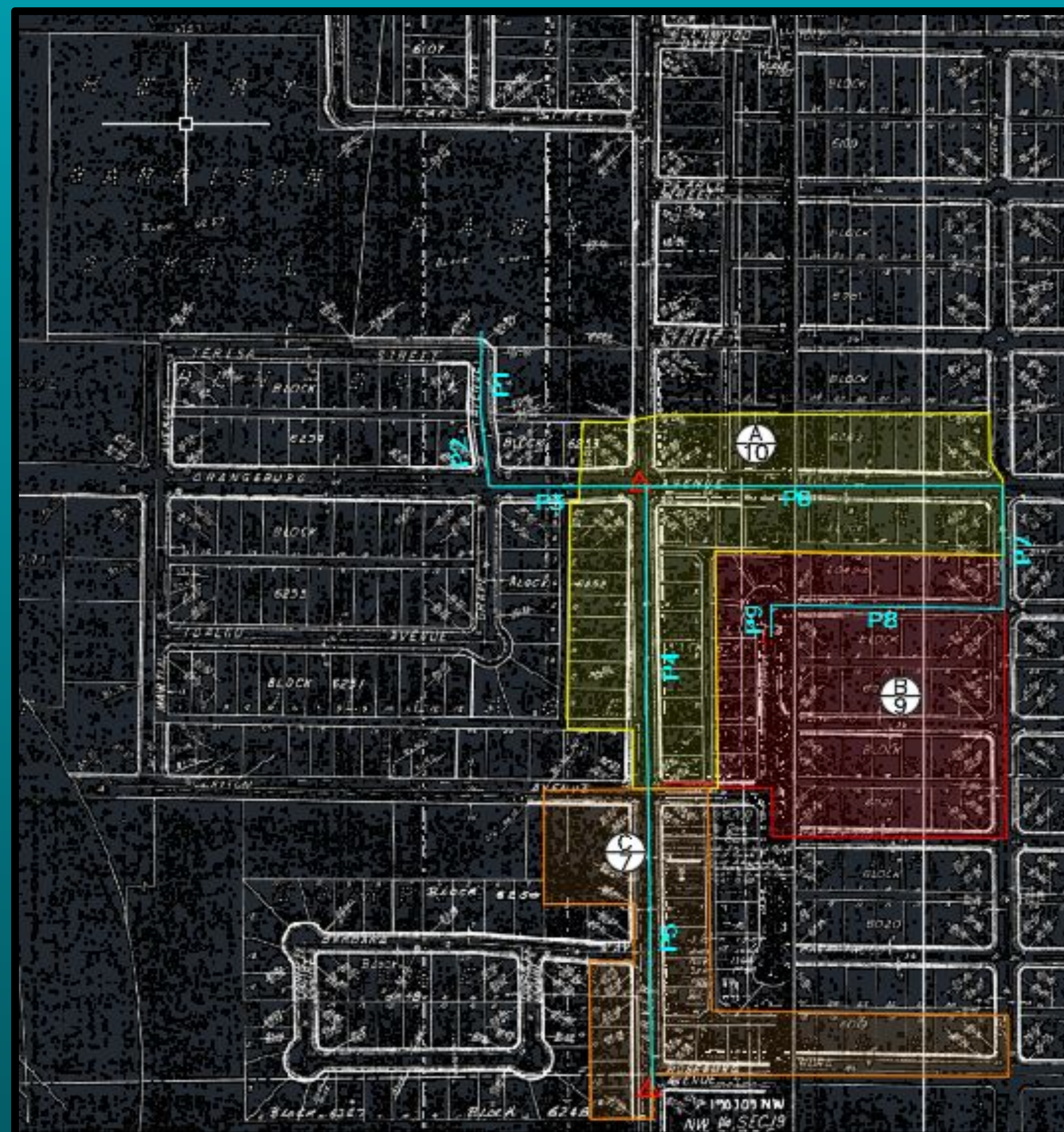


Project Description

The Modesto Area 2 Stormwater to Sanitary Sewer Cross Connection Removal Project is will remove three sanitary sewer to storm drain cross connections, which are illegal connections of storm drain inlets to the sanitary sewer system installed to relieve flooding. The project will infiltrate stormwater and recharge groundwater and reduce the surcharging of sewer lines, reduce the number of Sanitary Sewer Overflows, improve water quality for Dry Creek, and the Lower Tuolumne River. The project will also rehabilitate Garrison Park, it's soccer and baseball fields, and add a basketball court in a disadvantaged part of Modesto. The project will include a hydrologic analysis of the project area, hydraulic analysis of the storm drainage system, evaluation of the proposed retention basin, and prepare construction documents for the project.

Layout of the Cross Connection Map



Watershed Area and Pipe Lengths

	Area (sq.ft.)	Area (acre)
A. Yellow	430176	9.87
B. Red	386823	8.88
C. Orange	279877	6.43

	Length (ft)	Angle (deg)
P1	179.91	270
P2	167.16	276
P3	340.79	0
P4	675.71	270
P5	669.03	271
P6	775.41	0
P7	274.52	270
P8	505.41	179
P9	70.75	270

Design Approach

- Calculate the amount of stormwater that is collected from the three water basins
- Design pipeline from water basins to the retention basin
- Research what pretreatment device and retention basin is best suited for the Modesto area
- Ensure that any design or calculation follows the Modesto Design Standards

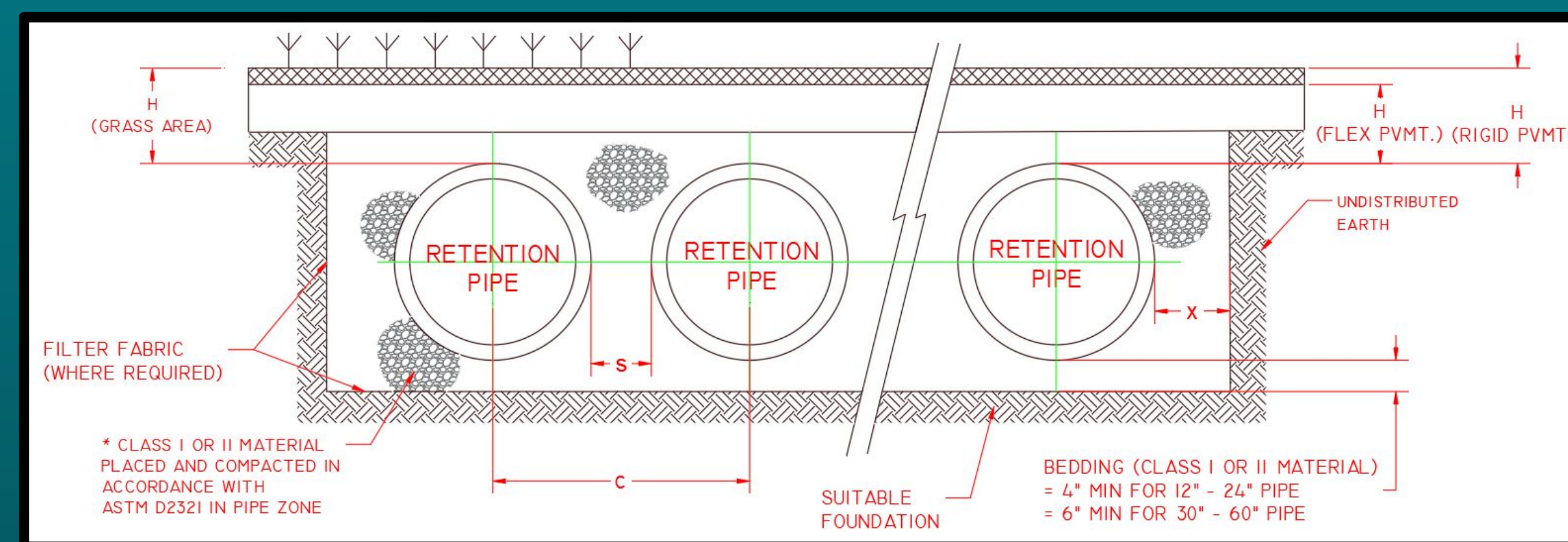
Constraints

- Retention basin shall be designed to allow the entire volume of a 100-year frequency, 6-day duration storm to infiltrate
- Catch basins are located where the cross-connections are
- Needs to empty 100-year 24-hour storm within 48 hours

Cross-Section of the Retention Basin

LandMax® Stormwater Management System

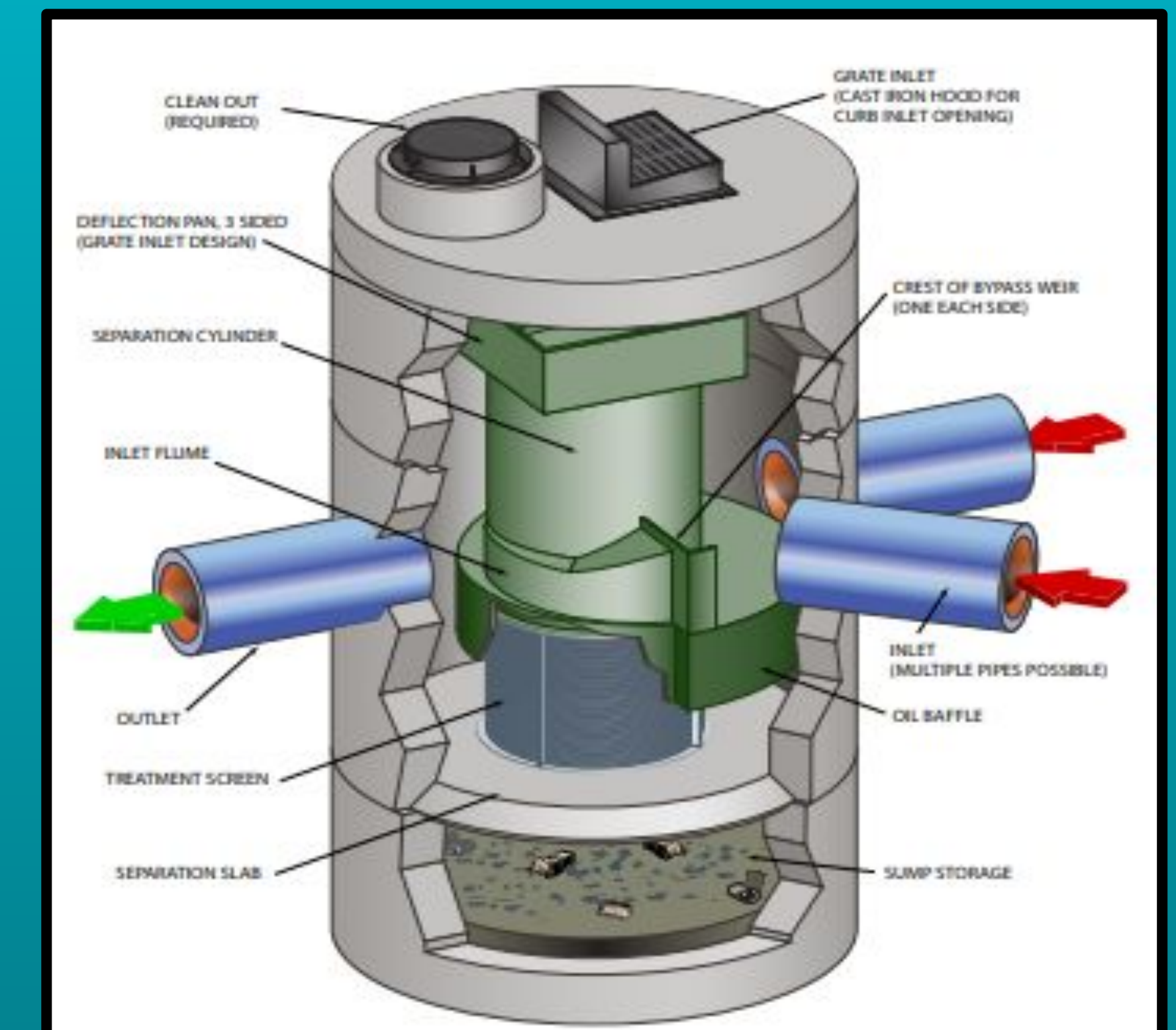
- Access to reuse stormwater runoff for a designated area
- Fits with 36" diameter inlet pipe
- 100 Year service life with proper inspection
- Optional risers and clean-out allow man-entry
- Providing high strength without excessive weight



Pretreatment Device

Continuous Deflection Separation (CDS)

- 80% TSS removal efficiency
- 100 Year service life with proper inspection
- Accepts multiple inlets at a variety of angles
- Performance verified by NJCAT, WA Ecology, and ETV Canada



Plans for Next Step

1. Complete Retention Basin design
2. Complete Pretreatment device plan
3. Full cost estimate
4. Construction Documents

References

1. Modesto Standard Specification 2014. (2014). Retrieved January, 2019, from <https://www.modestogov.com/DocumentCenter/View/1615/2014-City-of-Modesto-Standard-Specifications-PDF>
2. A. (n.d.). LandMax® Stormwater Management System. Retrieved from <https://www.ads-pipe.com/products/stormwater-detention-infiltration/landmax-stormwater-management-system>