Naco Sonora Diagnostic Study

(Mexican Alternatives & U.S.–Side Alternatives)

Alternative Solutions to eliminate Sanitary Sewer Overflows (SSO's)

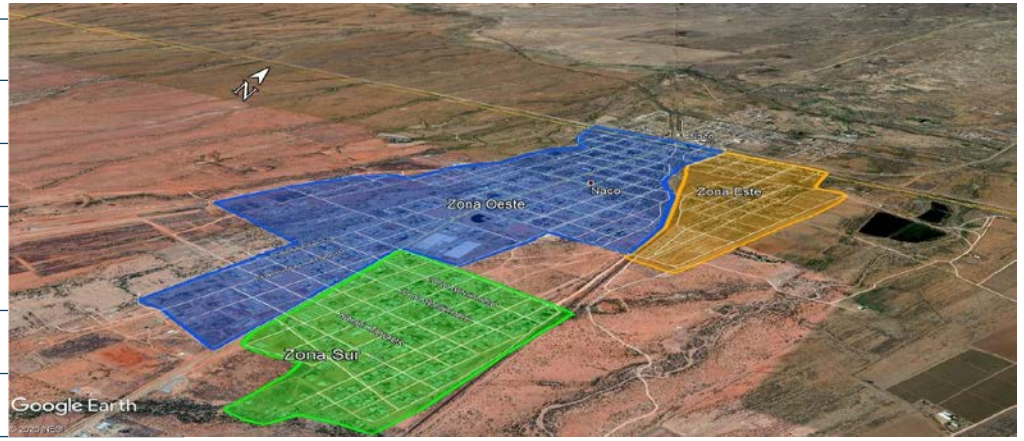
Southeast Arizona Citizens Forum

VTC February 11, 2021

SON Naco WWC/WWT Diagnostic for eliminating TB flows

Project Summary (Amounts in Dollars US Cy)

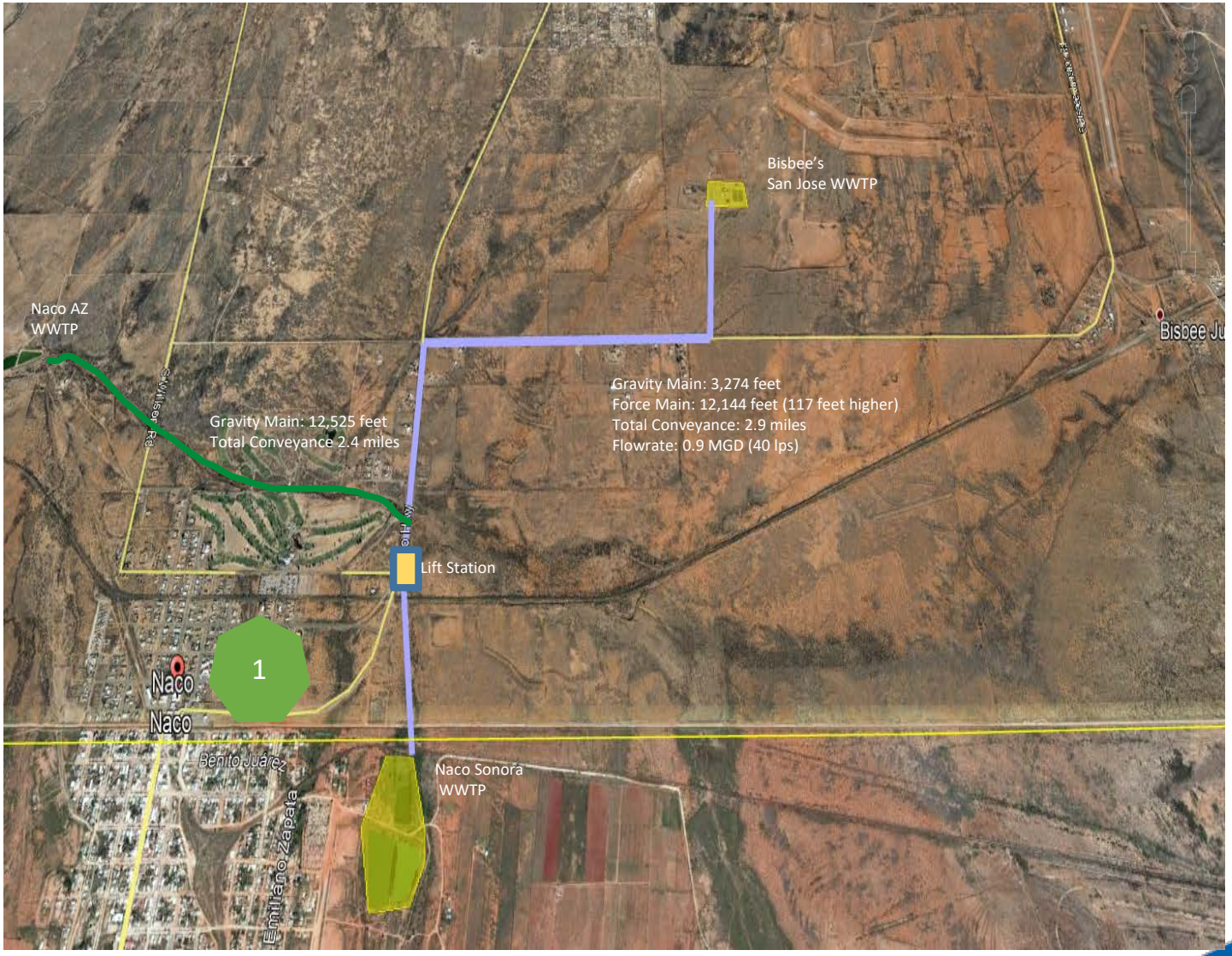
Sponsor:	Naco Sonora
Estimated Cost:	$ 2.0 million
NADB Funding:	BEIF $ 1 m
Funding Partners:	Mexico (TBD)
Pop. to Benefit:	6,401
Connections (#):	1,684



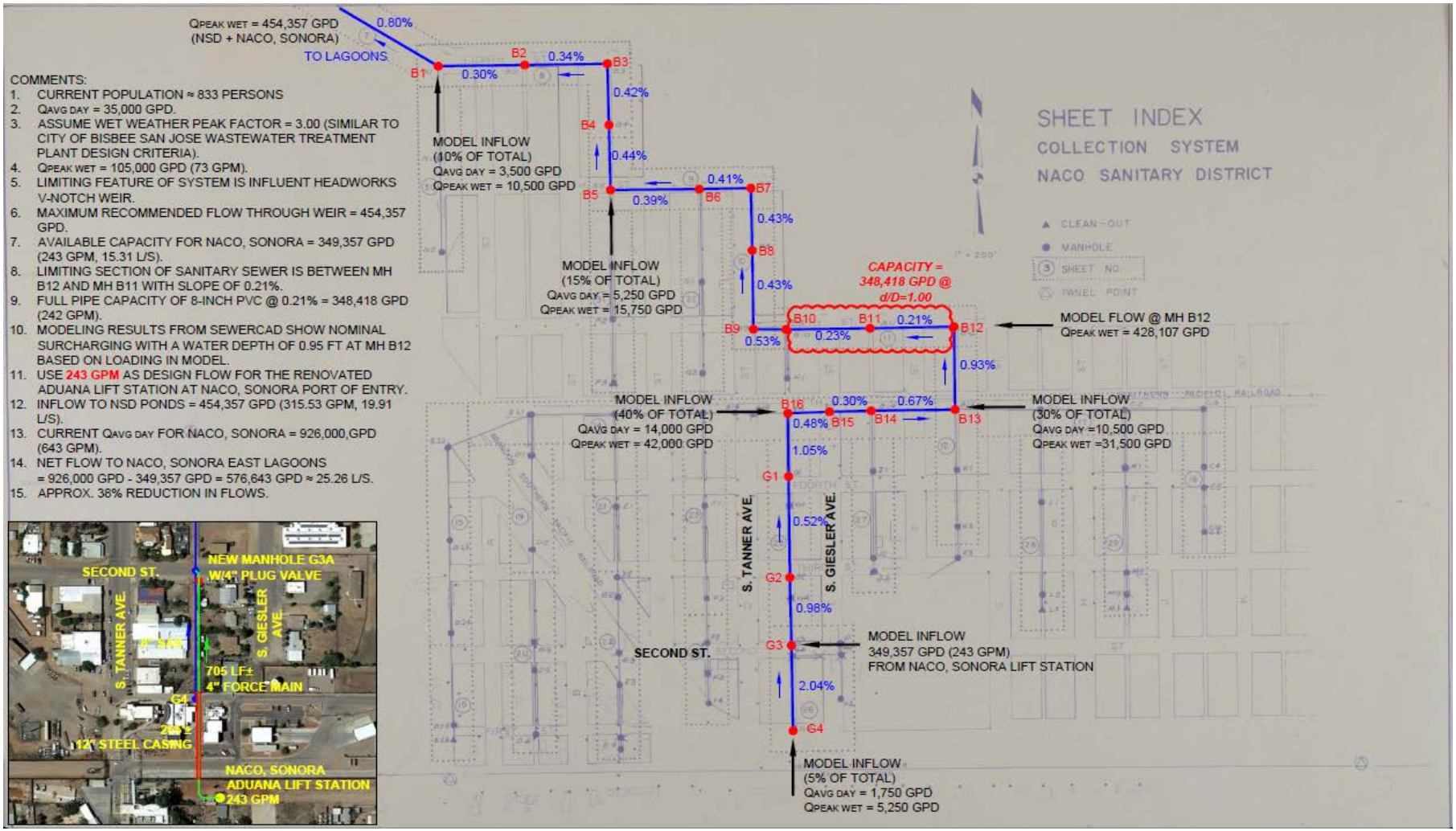
Existing Conditions:

- ✓ Naco Sonora's wastewater discharge is more than 3 times the normal usage, this situation along with deteriorated pipe materials and manholes as well as significant inflow and infiltration (I/I) into the system has generated overflows of untreated or inadequately treated wastewater toward and across the international boundary, which are in violation of the conditions set forth in the International Boundary and Water Commission (IBWC) Minute N° 273.
- ✓ The objective of the study is to determine the most appropriate, efficient and sustainable solution to eliminate runoffs and transboundary flows of untreated wastewater (WW) from the city of Naco, Sonora to Naco, Arizona

U.S. – Side Alternatives

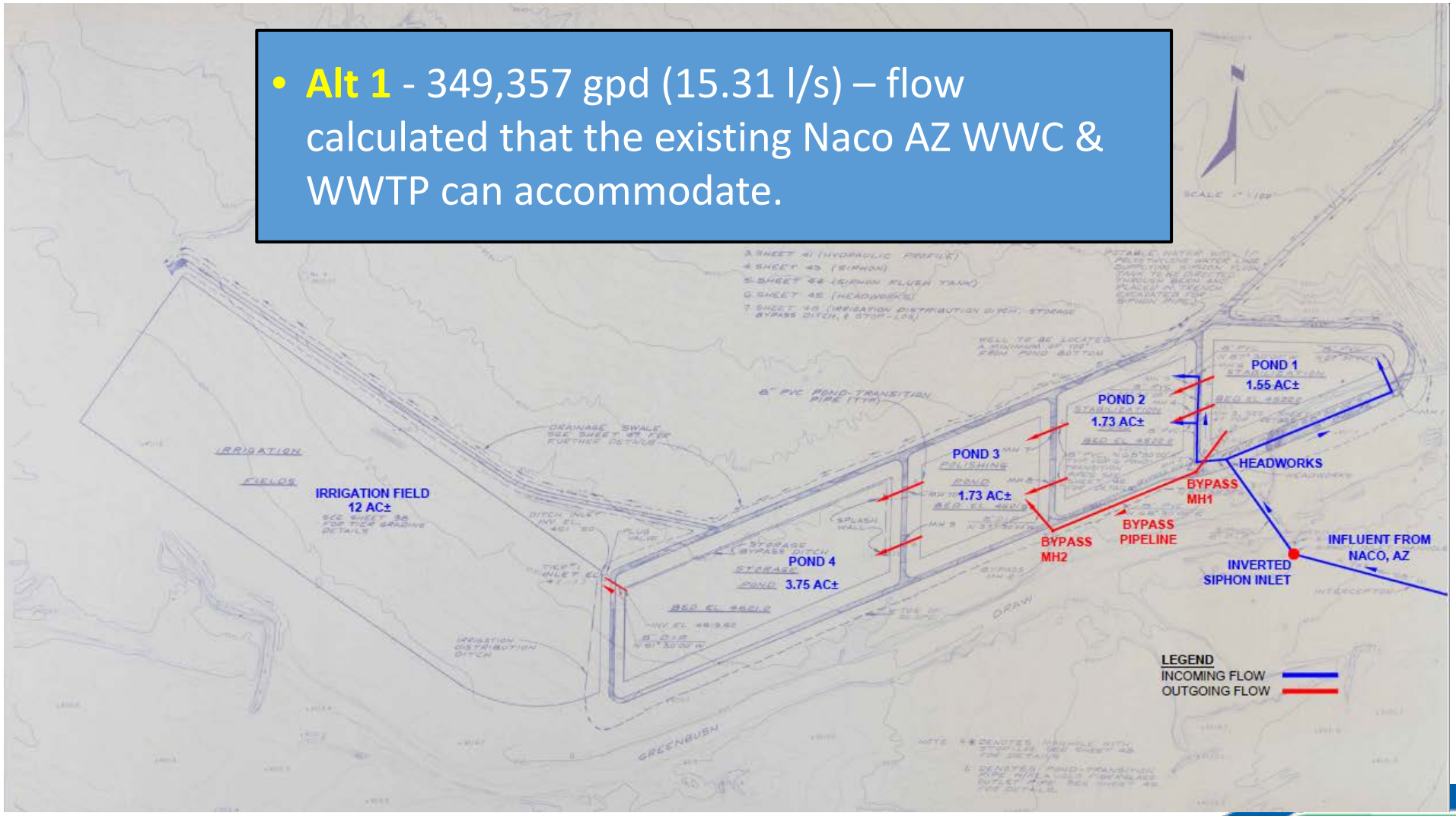


US Alternative No. 1 - Emergency Connection Between Naco, Sonora and Naco, AZ



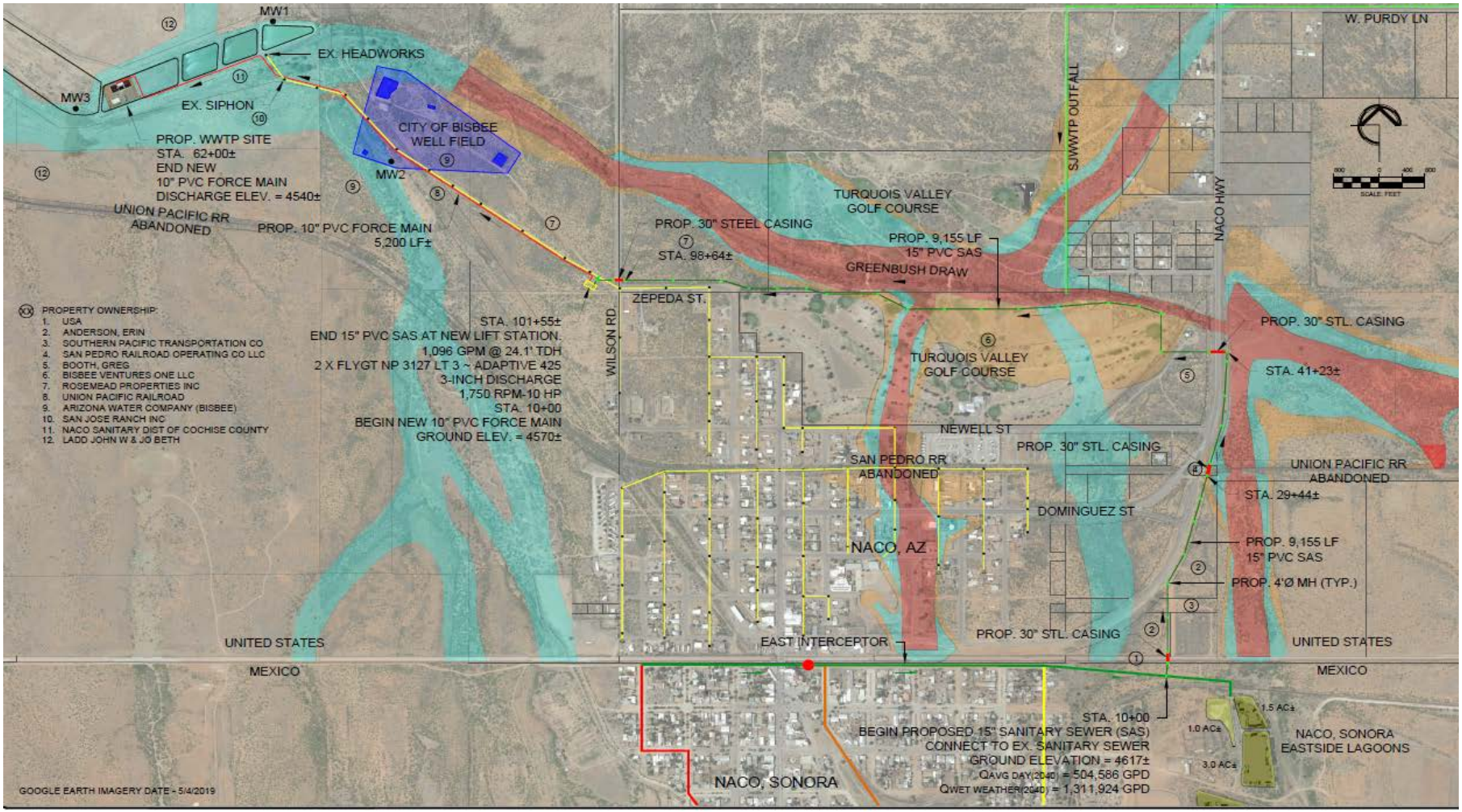
US Alternative No. 1 - Emergency Connection Between Naco, Sonora and Naco, AZ

- **Alt 1** - 349,357 gpd (15.31 l/s) – flow calculated that the existing Naco AZ WWC & WWTP can accommodate.



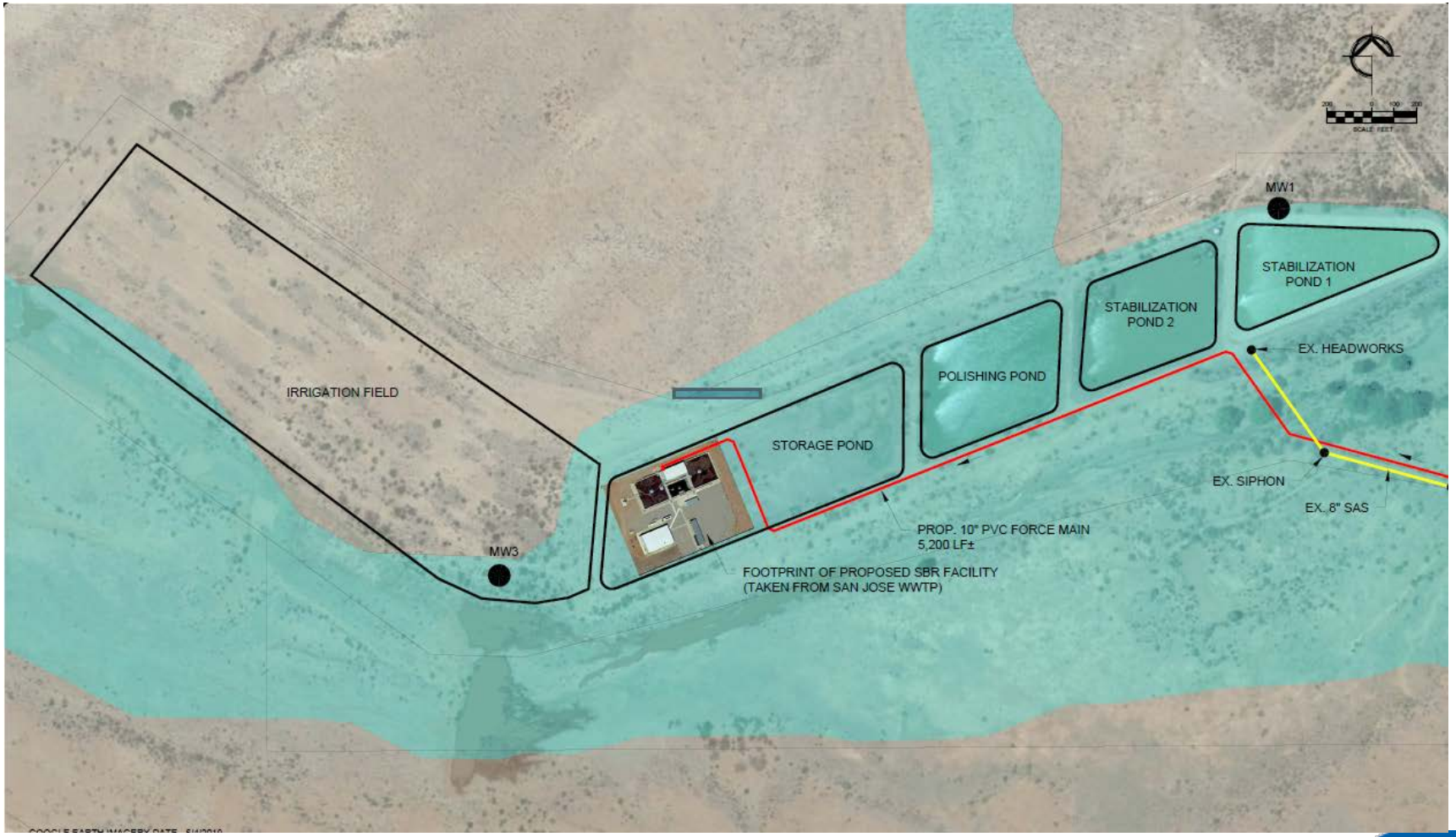
SON Naco WWC/WWT Diagnostic for eliminating TB flows

US Alternative No. 2 - Total Diversion of Naco, Sonora Wastewater Flow to Naco, AZ

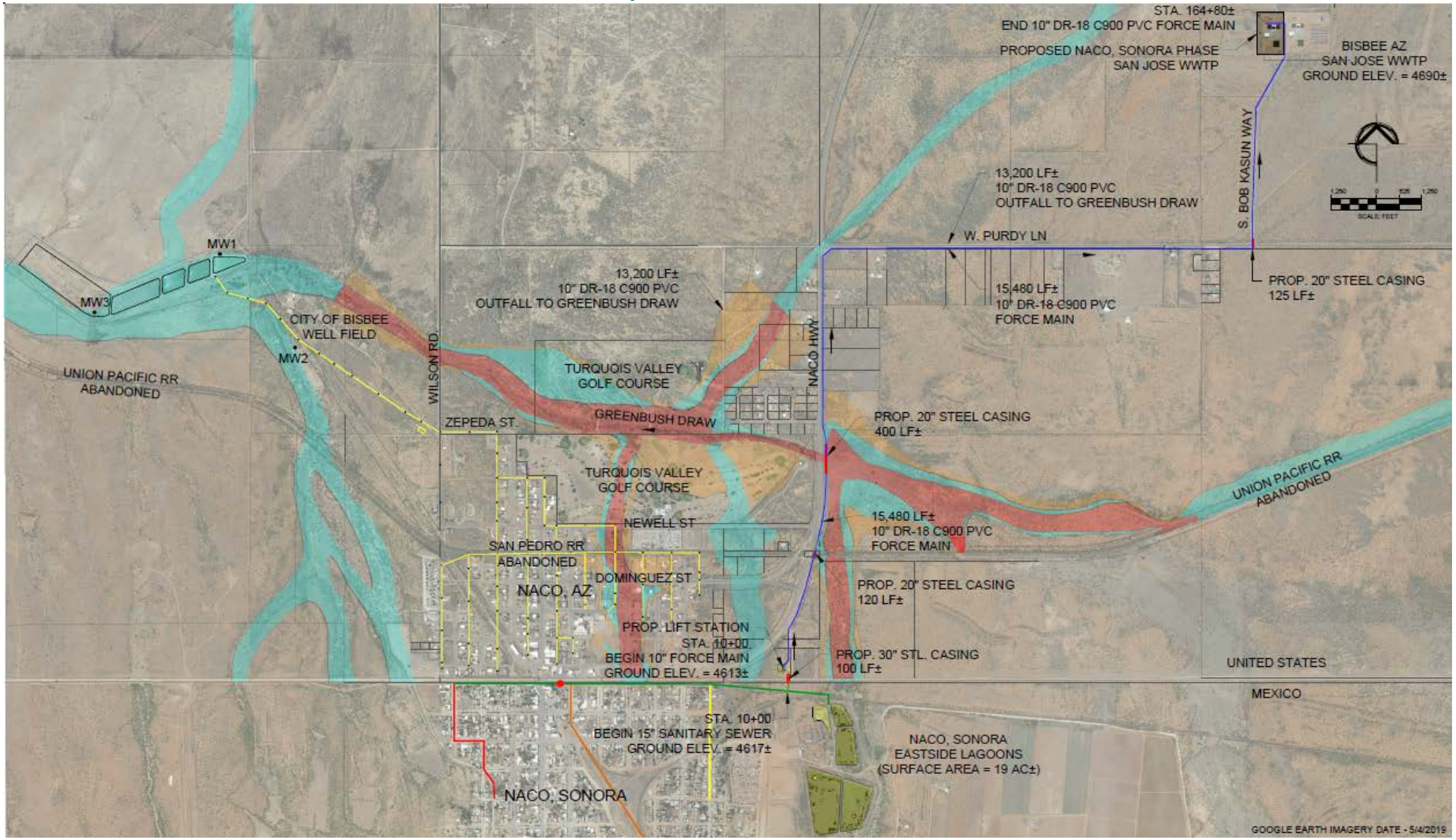


US Alternative No. 2 - Total Diversion of Naco, Sonora Wastewater Flow to Naco, AZ

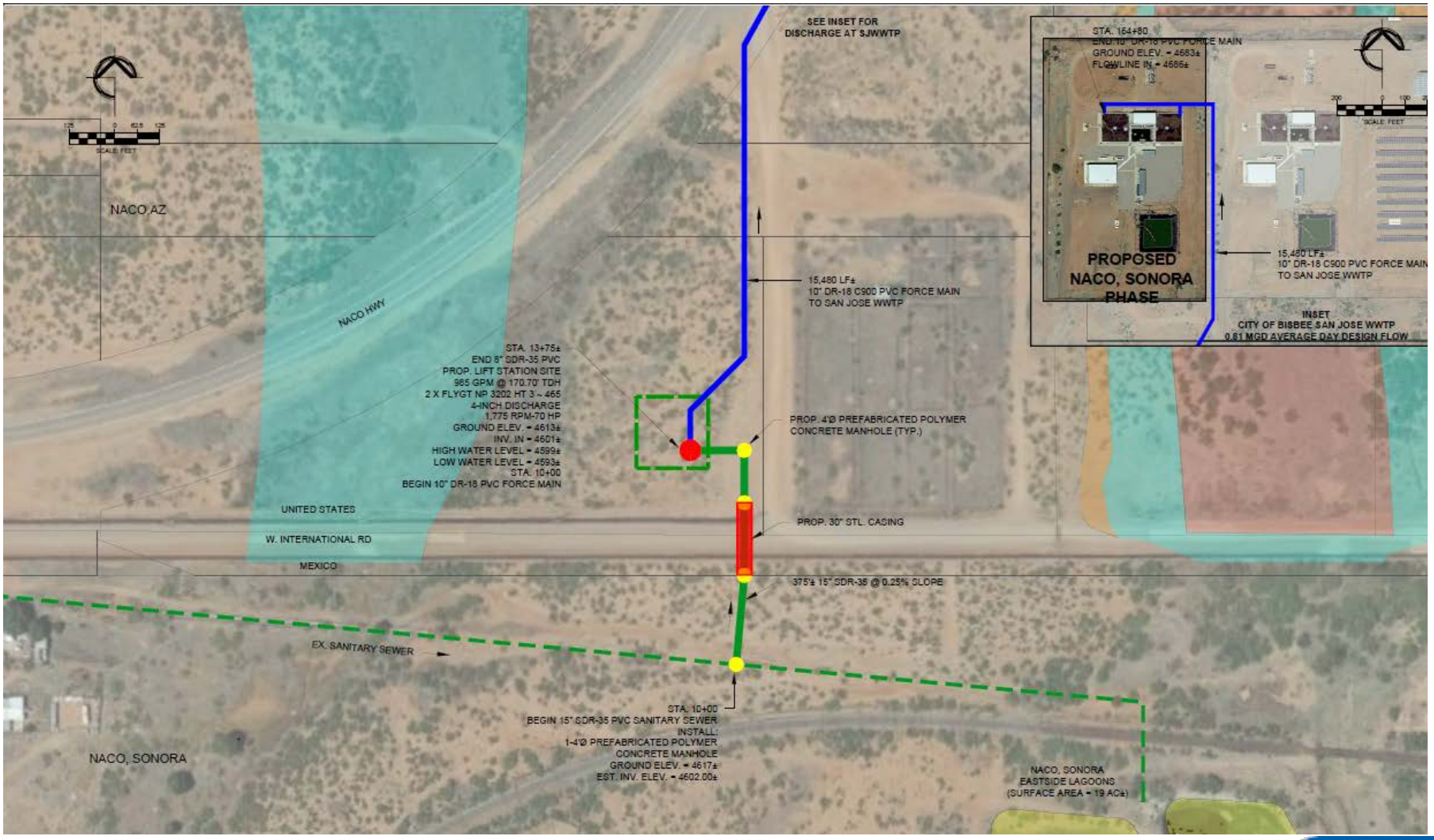
PROPOSED NSD WWTP - SEQUENCING BATCH REACTOR (SBR) TYPE



US Alternative No.3 - Total Diversion of Naco, Sonora Wastewater Flow to San Jose WWTP



US Alternative No.3 - Total Diversion of Naco, Sonora Wastewater Flow to San Jose WWTP



U.S. Alternative Cost Summary

	Line Item Construction Costs	Non-Construction Costs	Total Project Cost	Annual O&M Costs
Alternative 1	$531,750	$212,700	$744,450	$12,000
Alternative 2	$11,782,500	$4,713,000	$16,495,500	$839,953
Alternative 3	$10,616,100	$4,246,440	$14,862,540	$731,193

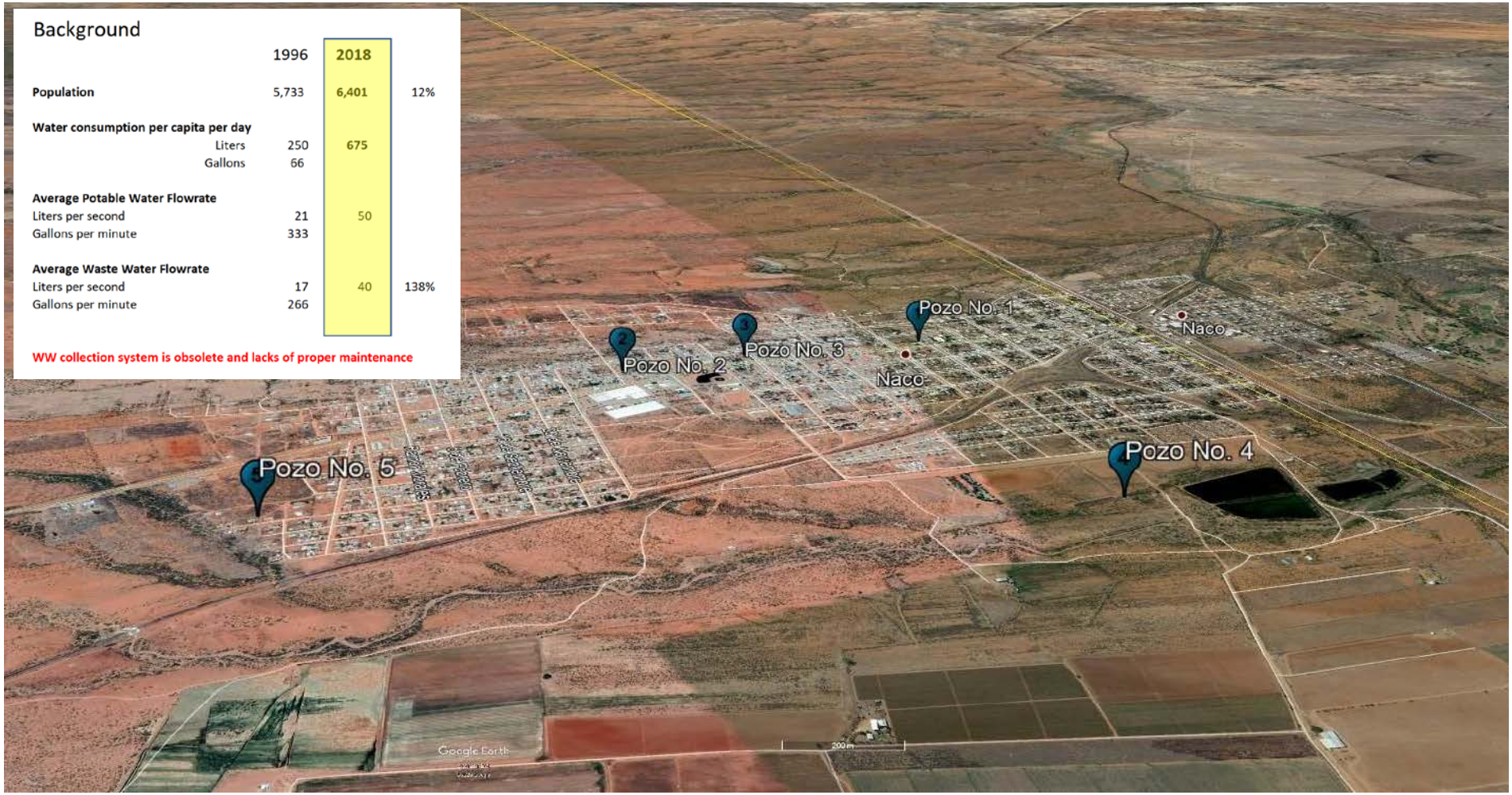
1) **US Alternative No. 1 - Emergency Connection Between Naco, Sonora and Naco, AZ**
   - The proposed emergency connection will include modifications to the existing lift station in Naco, Sonora, a PVC force main to Naco, AZ, and a connection to the NSD collection system in Second St., between S. Tanner Ave. and S. Giesler Ave. A new manhole will be required with a plug valve (manually opened).
   - Due to the unknown operating schedule, it is not possible to develop an annual O&M cost; however, assuming that weekly maintenance will be performed on the lift station to ensure its ability to function in an emergency, an annual O&M cost of $12,000 will be assumed for cost comparison purposes.
2) **US Alternative No. 2 - Total Diversion of Naco, Sonora Wastewater Flow to Naco, AZ**
   - Approximate 9,155-ft length of a proposed gravity interceptor that results in a ground slope of -0.51%.
   - The existing stabilization pond system does not have capacity to serve the projected flows from Naco,
   - Sonora; thus, a new treatment plant is required. A new lift station will be required to cross Greenbush Draw and discharge to the headworks of the new facility.
3) **US Alternative No. 3 - Total Diversion of Naco, Sonora Wastewater Flow to San Jose WWTP**
   - The proposed gravity interceptor will consist of 15-inch SDR-35 PVC pipe constructed at a slope of -0.25%. The 15-inch interceptor will discharge to a new lift station immediately north of the US/Mexico border.
   - The proposed facility is intended to mirror the existing plant. The footprint shown is the same as the existing facility and is shown for comparative purposes recognizing that the new facility will be sized for 500,000 gpd (21.90 l/s) and not 810,000 gpd.

Diagnostic Study – Mexico Alternatives

Background

	1996	2018	
Population	5,733	6,401	12%
Water consumption per capita per day			
Liters	250	675	
Gallons	66		
Average Potable Water Flowrate			
Liters per second	21	50	
Gallons per minute	333		
Average Waste Water Flowrate			
Liters per second	17	40	138%
Gallons per minute	266		

WW collection system is obsolete and lacks of proper maintenance



Naco Transboundary Flows

Background

	1996	2018	
Population	5,733	6,401	12%
Water consumption per capita per day			
Liters	250	675	
Gallons	66		
Average Potable Water Flowrate			
Liters per second	21	50	
Gallons per minute	333		
Average Waste Water Flowrate			
Liters per second	17	40	138%
Gallons per minute	266		

WW collection system is obsolete and lacks of proper maintenance

Sanitary Sewer Network

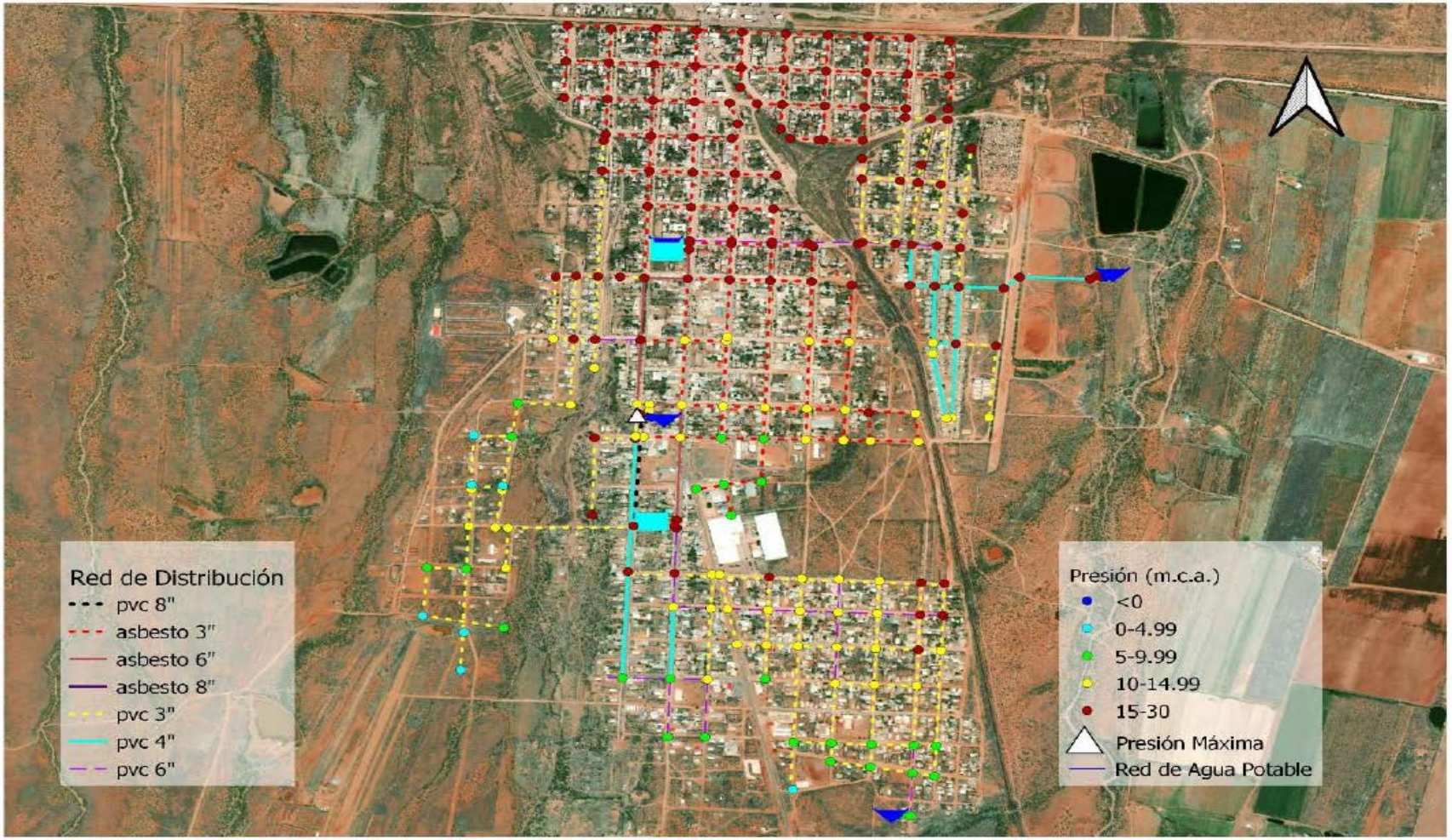
1) Initial site visit by Mexican consultant on Sep 7-11, 2020 to ground proof existing available information.

2) Vactor services of the entire sanitary sewer (SS) network was done (we believe the north portion is where most of the sediment is deposited).

3) Video Inspection was not as expected due to the integrity of the SS; However, sufficient data was collected to determine that most of the SS needs to be replaced.

4) Potable Water Leak Detection was done during the week of Feb 1-5, 2021 to determine **I/I** – results are expected by mid- Feb 2021.

Potable Water Network



Potable Water Leak Detection was done during the week of Feb 1-5, 2021 – results are expected by mid- Feb 2021.

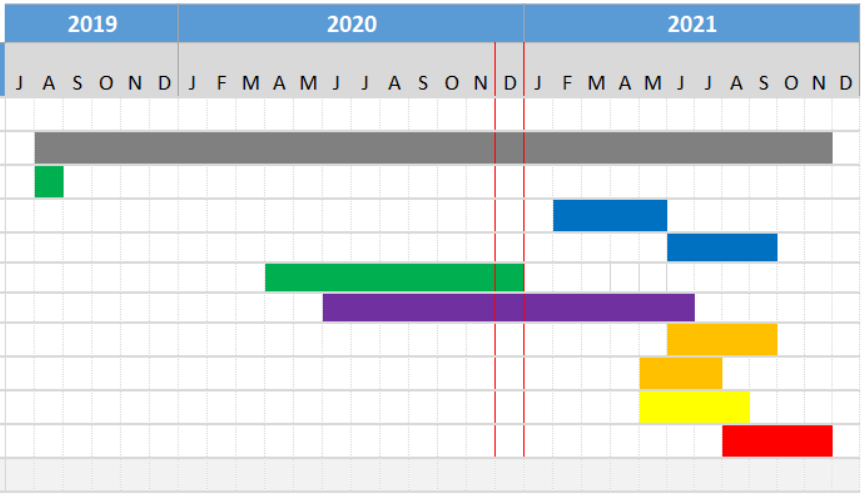
Project Schedule

PID 932 Naco WWC & WWT

Project Schedule

DEC 2020

TASK DESCRIPTION	PLAN START	PLAN END
Project Development	8/9/2019	11/12/2021
Notification Letter	8/9/2019	8/9/2019
US Environmental NEPA Process	2/15/2021	5/16/2021
MX Environmental MIA Clearance	6/15/2021	9/13/2021
Transboundary EID & US-side Laternatives	4/15/2020	12/15/2020
Alternatives Analysis & Final Design (DB Option)	6/10/2020	6/15/2021
Public Participation (Outreach)	6/15/2021	9/3/2021
Pretreatment Activities	5/16/2021	7/15/2021
Financial Evaluation	5/16/2021	8/14/2021
Certification	8/14/2021	11/12/2021



Thank you for your Attention