EXHIBIT C

Technical Report, The Holt Group

Imperial County Niland Sanitary District

Technical Report

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I. System Introduction

The Niland Sanitary Sewer District (NSD) was formed in 1945 to serve the Niland community with sewer collection and treatment facilities and operates under NPDES Permit No. CA0104451. Sanitary sewer collection pipelines within the Niland community were originally constructed in the mid-1940's. The existing Niland Sanitary District Wastewater Treatment Plant was originally a package activated sludge system designed to treat 0.31 million gallons per day (MGD) with major investment occurring in the early 1970s. Between 1991 and 1993, the plant was decommissioned and taken offline in favor of an aerated pond system.

The 1993 system was designed to treat an average daily flow of 0.31 MGD (310,000 gallons per day) and a peak flow of 0.63 MGD (630,000 gallons per day). The current NPDES Permit lists the facility rated Wastewater Treatment Plant flow capacity as 0.50 MGD (500,000 gallons per day). The average plant flow, in 2014, of 63,300 gallons/day was only 13% of the NPDES Permit approved capacity. The Peak monthly flow in 2014 was 83,600 gallons/day. Plant flows in 2015 and 2016 were slightly lower, but comparable in pattern.

The system serves an estimated population of 1,344 persons based on the number of residential households serviced by the NSD which is 448 residential sewer connections multiplied by 3 persons per household (the average household size in 2015). Despite Niland community having a historically negative growth rate of 12% between 2000 and 2010 the 2016 PER prepared by The Holt Group, Inc. considered a reasonable and modest growth rate to accurately asses the needs of the sewer facilities over a thirty (30) year timeframe. Growth demand was calculated using the 20-year historic annual growth rate for unincorporated areas in Imperial County of 1.9%. The anticipated population growth for Niland is 2,011 by 2035 at this rate.

Growth demand was calculated using 85 gallons per person per day. The wastewater treatment demand reaches 156,000 gpd by 2030. Although the 85 gpd is lower than the traditional industry standard of 100 gpd for projections, it is an adjustment that is being made throughout desert communities in consideration of water conservation efforts. The 85 gpd is furthermore conservatively higher than the current average flows of 47 gpd. It has therefore been determined that the existing NSD WWTP has sufficient treatment capacity to accommodate growth and that any project alternatives to address compliance issues would consider a conservative 150,000 gpd design.

The longstanding challenge at the NSD WWTP is the inability to treat the effluent adequately per permit standards. The predominant issues at the NSD Wastewater Treatment Plant remain as exceedance of Copper and Thallium which is highly toxic. This report provides a general overview of system components, conditions and regulatory background based on available Preliminary Engineering Reports prepared throughout recent years as noted in this document. Engineering recommendations are also incorporated as applicable.

II. Infrastructure Overview & Regulatory Background

Niland Sanitary District Facilities

The Niland Sanitary District (NSD) owns and operates approximately 6 miles of gravity flow sewer collection pipelines, ninety-sevem manholes, one lift station, and a Wastewater Treatment Plant. The pipelines range from 4-inch to 10-inch in diameter and are primarily situated in a grid-like pattern within an approximate 0.50 square mile radius, encompassing the Niland Community: generally bound by the Southern Pacific Railroad to the northeast, Noffsinger Road to the south and Highway 111 to the west. The system gravity flows via a 10" diameter sanitary sewer outfall maim pipeline for approximately 2,000 feet west along Alcott Road to the existing lift station at the WWTP as noted in **Figure 1-Facilities Map**.

The existing Niland WWTP is accessed from Alcott Road, from a bridge over the "R" Drain. The "R" Drain is owned and operated by the Imperial Irrigation District (IID). The Niland Wastewater Treatment Plant is located on 17.46 acres owned by the NSD. The Plant itself consists of a pump station, three aerated ponds that operate in series, a chlorination and dechlorination basin, a chemical storage structure and a laboratory/staff building all of which are discussed in further detail under existing conditions.

Regulatory Background

The NSD WWTP has a long history of compliance challenges with the Colorado River RWQCB, as summarized in **Table - A**. The majority of the violations are due to treatment not meeting permit requirements for E-Coli (bacteria), copper, and thallium. Although there have been a number of E. Coli violations over the years, there have been no E. Coli violations since 2011.

Figure 1-Facilities Map

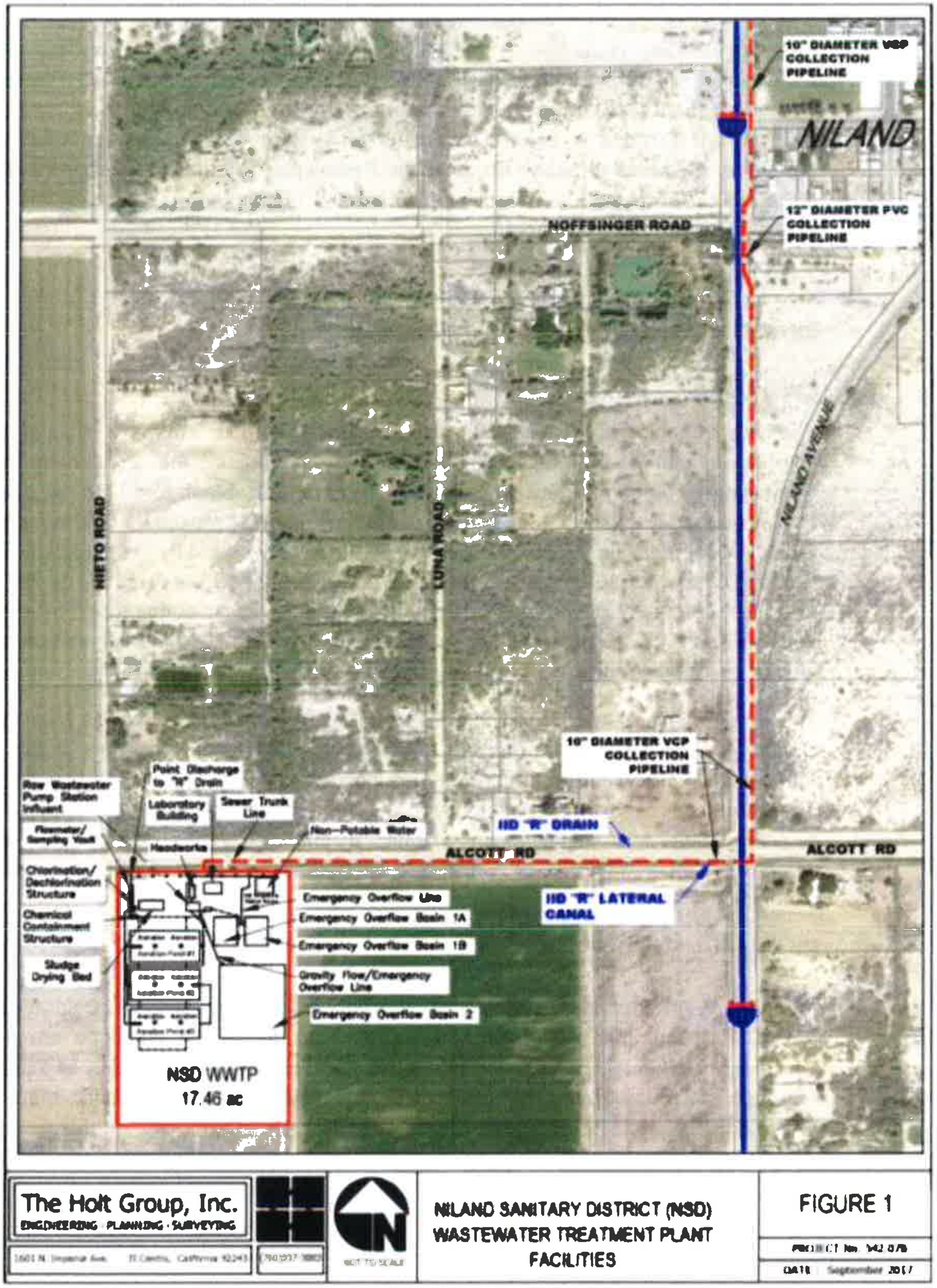


Table A - Violation History

DATE	ORDER NUMBER	TYPE	FINE AMOUNT
12/10/1999	R7-0099-0128	Administrative Civil Liability	$ 25,000
11/16/2005	R7-2005-0112	Administrative Civil Liability	$ 108,000
09/20/2006	R7-2006-0074	Administrative Civil Liability	$ 126,000
01/22/2009	R7-2009-0007	Cease and Desist Order (Violated)	-
09/20/2012	R7-2012-0024	Cease and Desist Order (Violated)	-
2017	R7-2017-0005	Administrative Civil Liability	$478,103

The predominant issues at the NSD Wastewater Treatment Plant remain as exceedance of E. Coli, Copper and Thalium. The most recent Administrative Civil Liability was issued in 2017 for failure to comply with the 2012 amended Board Order milestones.

E. Coli- Historically, the NSD has had several E. Coli test exceedances which is bacteria. However, between 5/31/2011 and 2016 no bacteria testing violations had occurred through per the Chief Plant Supervisor. To maintain disinfection performance, the operators adjust the metering pump, when necessary, after measuring the chlorine residual at the end of the chlorine contact basin. In 2017, however, the operators have documented the following exceedances in the months of April, June, July and repeatedly during the month of August 2017.

Copper-The current NSD NPDES Permit has an average monthly effluent limitation of 19 µg/L with a maximum daily limitation of 52 µg/L for copper. Since November 2005, the District has experienced copper exceedances. A review of the 2013 and 2014 years of copper testing shows that for most months there are measurable concentrations of copper were not documented through 2017. These concentrations of copper have exceeded the average monthly effluent limitations in each month testing occurred.

Thallium- Thallium is very toxic. EPA has set the MCL (maximum contaminate level) of thallium for drinking water at 2 µg/L with a MCLG (maximum contaminant level goal) of 0.5 µg/L[1]. The exceedances of thallium occurred mostly in December and January of 2012 and 2013, respectively, but have not occurred in 2014 or 2015, 2016 and 2017 according to plant operators. Over 90% of the thallium concentration will need to be removed to meet the permit conditions if the previous concentration of 70 µg/L continues to be intermittently transmitted to the NSD Wastewater Treatment Plant.

[1] Basic Information about thallium in Drinking Water, http://water.epa.gov/drink/contaminants/basicinformation/thallium.cfm

In August of 2017 there were additional violations of CL2 (Total Residual Chlorine) and Fecal Coliform. Fecal Coliform exceeded limitations by 400% while the CL2 was exceeded by 11000% as per the operator records.

The existing Wastewater Treatment Plant is capable of complying with the current NPDES Order R7-2014-0001 – NPDES No. CA0104451 permit regarding effluent limitations with the exception of copper and thallium exceedances and occasional disinfection exceedances. A Pretreatment Program Needs Assessment Summary Report dated January 17, 2014 was completed by the Regional Water Quality Control Board, Colorado River Basin (Water Board) within the NSD service area to attempt to identify the source or possible sources of copper and thallium in the influent wastewater. Although several possible general sources of copper and thallium contributions were noted in the Summary Report, a definitive, site specific source has not been identified.

III. Wastewater Treatment System Conditions & Recommendations

The Niland Wastewater Treatment System is an established facility and as previously noted it has sufficient capacity. The challenge is that the WWTP has been unable to reach treatment adequacy levels despite several system improvements completed over the years. **Table B-Infrastructure History**, below, provides the construction history of major components at the NSD treatment plant. The Table provides a general overview of investment and age of infrastructure. Subsequently, a brief summary of the existing conditions for each treatment system component is presented based on site inspections performed by The Holt Group, Inc. in the fall of 2016.

Table B - Infrastructure History

System Components	Year Constructed	Years(s) Renovated	Description of Renovation
Treatment	1948		An Anaerobic Imhoff Tank with capacity of 180,000 gallons per day[1]
	1974		Packaged Activated Sludge Plant was constructed.[1,2]
		1985	Sandblasted & Recoated Activated Sludge Plant prior to its decommissioning in 1993[3]
	1993		An aerated pond WWTP was constructed in 1993 to replace the prior Activated Sludge packaged plant.[4]
		2010	Aerated Pond WWTP was upgraded with improvements to the pump station, chlorination system and other miscellaneous items.[2]
Effluent Disposal/ Reuse	1993		Installed new effluent discharge pipeline from newly constructed ponds.[4]
Sludge/Biosolids		1993	Emergency Overflow/Sludge Ponds remained after aerated pond WWTP was constructed.[4]
Pump Station(s)	1993	2010	The aerated pond pump station was constructed in 1993 and rehabilitated in 2010.[2,4]

Source: [1]The Holt Group, Inc. PER dated September 1991
[2]AMEC PER dated December 18, 2012-Page 10
[3]The Holt Group, Inc. Improvement Plans dated April 30, 1985
[4]The Holt Group, Inc. Improvement Plans dated April 30, 1993

A. Treatment System Conditions and Findings

The condition of the existing treatment facilities has been evaluated over a number of years by several engineering firms. The following narrative provides an overview of the findings made by The Holt Group, Inc. based on a 2016 on-site inspection, unless otherwise noted.

1. Headworks Station

Raw wastewater from the Niland community is transmitted to the Wastewater Treatment Plant headworks station which consists of a manual bar screen located in a below grade concrete structure. The raw wastewater influent passes through the manual bar-screen prior to entering the influent pump station. The Headworks Structure has not had any major improvements since its initial construction as part of the 1993 NSD WWTP Improvement Project, however, the Manual Bar Screen was replaced in the 2010 NSD WWTP Improvement Project. **CONDITION: The Headworks Structure appears to be in good condition. No Capital Improvements are recommended at this time for the Headworks Station.**

2. Raw Water Influent Pump Station

The Raw Wastewater Influent Pump Station consists of an 8-foot wide x 14-foot long x 20-foot deep (inside dimensions) concrete wet well with 1-foot thick concrete walls coated with a urethane coating system during the 2010 Wastewater Treatment Plant Improvement Project. The influent pump station is controlled by an ultrasound depth gauge that energizes two submersible pumps when a high water level is reached in the wet well. The pumps' motor control space is located within the Motor Control Center in the Laboratory Building. The two (2) submersible pumps were originally installed in 1993 and along with the discharge piping were replaced in the 2010 NSD WWTP Improvement Project. The pumps can be removed from the wet well by means of slide rails which are attached to the access hatch located at the top of the wet well. They are 700-gallon per minute, 12 horsepower, 480 volt, 3-phase pumps **CONDITION: The pump station interior concrete walls appear to be in satisfactory condition. The pumps and discharge piping are operable and in good condition. The Electrical / Control Panels for the submersible pumps are in operable and good condition. The fiberglass grating has experienced deterioration with exposure to the atmosphere and raw sewage gases and should be replaced with a 316 stainless steel grating. The existing manhole also requires removal, surface preparation and recoating of the manhole frame and cover.**

3. Aeration Ponds

The raw wastewater influent pump station transmits the wastewater to three aeration ponds. The ponds have been operational since 1993. The three (3) lined aeration ponds are connected in series (Ponds 1, 2 and 3), each with two (2) 7.5 horsepower, 480-volt, floating aerators. The current plant is operating with one (1) active aerator in each aeration pond. Each pond is approximately 300 feet x

150 feet x 10.8 feet deep with 3:1 side slopes and has an effective volume of approximately 1,800,000 gallons of wastewater for a total volume of approximately 5,630,000 gallons.

The majority of the solids accumulate in the most upstream first cell pond, Aeration Pond Number 1. See the attached **Flow Schematic Map-Figure 2**. The accumulated sludge in Aeration Pond Number 1 will eventually create excessive anaerobic conditions in the lower portion of the pond which can result in decreased BOD reduction and can eventually result in BOD effluent limitation exceedances and NPDES permit violations, thus the sludge in Aeration Pond Number 1 must be periodically removed.

CONDITION: Isolated HDPE Liner areas above the liquid effluent level have minor signs of hardening from exposure to the atmosphere and deterioration is evident with small cracks and tears and require patching. Several valves within the pond system are frozen open or frozen shut and create problems for bypassing the ponds or taking individual ponds offline for maintenance and sludge removal and thus require repair. All other facilities including the PCC Outlet Structures, six (6) Aerators, three (3) steel catwalks, three (3) Davit Cranes, and Electrical / Control Panels are in operable and good condition.

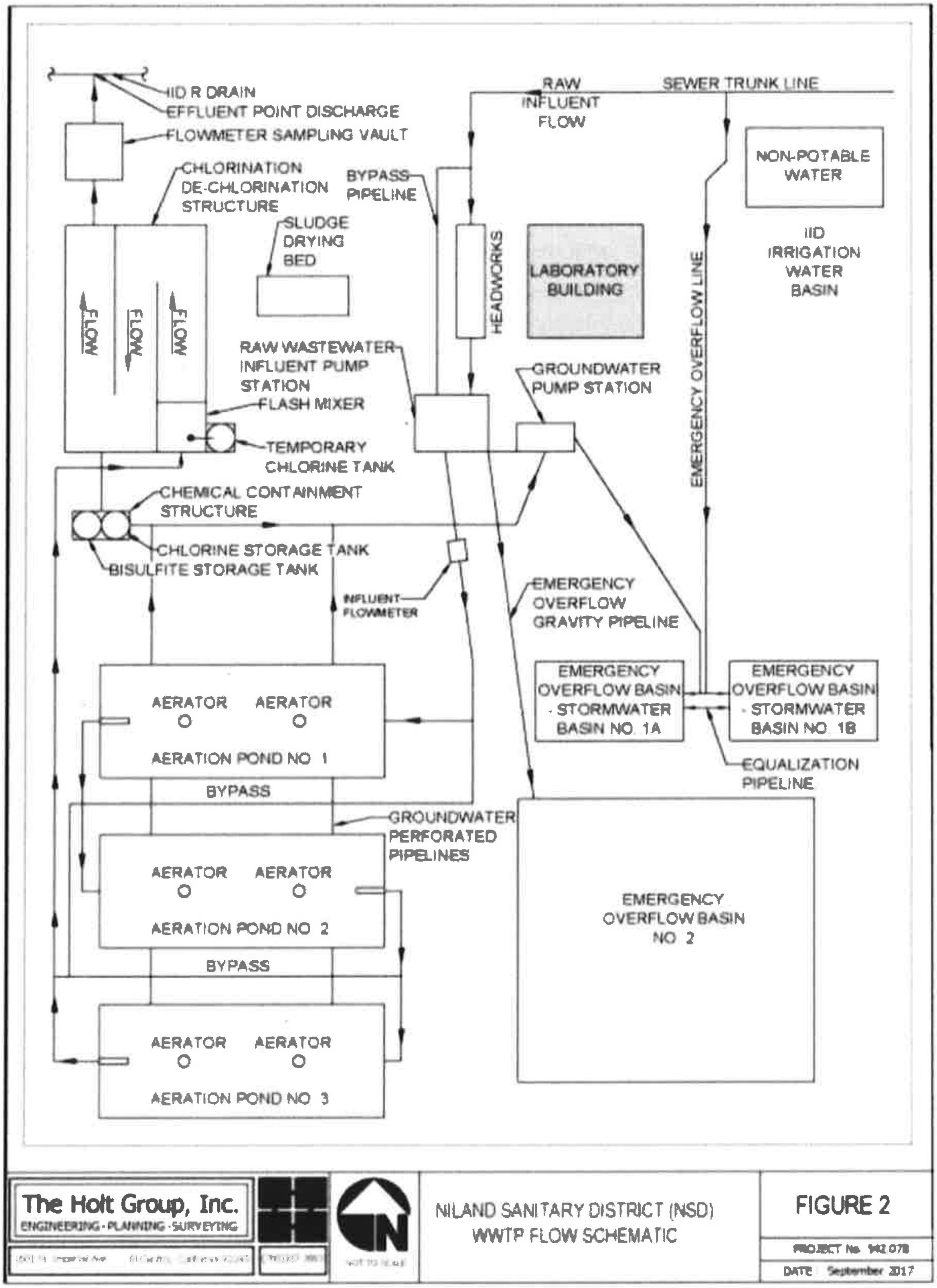
4. Groundwater Pump Station

There is a groundwater pump station located adjacent to the influent pump station designed to lower the ground water level under and around the aeration basins to prevent the aeration pond liner from "raising" up due to infiltrating water when the aeration ponds are emptied for cleaning and maintenance. It has been at least 5 years since the Ground Water Pump Station has been operated. The Ground Water Pump Station was constructed during the 1993 NSD WWTP Improvement Project. **CONDITION: The interior of the wet well appears to be in good condition. Replacement of the aluminum grate/cover located at the top of wet well is necessary. The wet well's entrance cover opening at the surface level is temporarily covered with a plywood section which is not secured and represents a safety hazard.**

5. Chlorination/Dechlorination Basin

The wastewater is ultimately directed from Aeration Pond #3 to the chlorination/dechlorination basin which is a below grade concrete rectangular facility approximately 80 feet x 15 feet x 15 feet deep. A small eyewash station is also in place. Meter pumps are operated manually and dosing is based on daily readings of the chlorine residual in the contact basin. Dechlorination occurs prior to effluent flow leaving the basin. Improvements to the chlorination/dechlorination structure facility have not occurred since the structure was constructed during the 1993 NSD WWTP Improvement Project.

Figure 2-Wastewter Flow Schematic



CONDITION: The chlorination/ dechlorination chemical tanks, pumps and chemical containment structure require rehabilitation due to physical deterioration. The southern portion of the PCC Structure including the concrete Flash Mixer containment area is in a deteriorated or failed condition and warrants rehabilitation. Portions of the railing throughout the PCC Structure also require replacement. The middle and northern portion of the PCC physical structure appears to be in good condition. The replacement of the existing eyewash station for the chlorination/dechlorination Structure is also recommended.

6. Chemical Containment Structure

The Chemical Containment Structure's steel structure was recoated as part of the 2010 NSD WWTP Improvement Project. Chemical pump controls installed as part of the 1993 NSD WWTP Improvement Project are not operable. The chemical controls are located within the Laboratory Building. The original controls allowed flow proportioned chemical injection and are presently set by manual adjustments. An abandoned and inoperable 4,000 gallon sodium hypochlorite fiberglass tank constructed in 1993 is located within the structure. The liquid sodium hypochlorite is currently stored in a temporary tank provided by the chemical provider. The temporary tank is a 4,000 gallon PVC placed outside of the Chemical Containment Structure adjacent to the chlorination /dechlorination structure along with a chlorine pump. The temporary tank and pump are providing the sodium hypochlorite to the chlorination / dechlorination basin. The chlorination tank is not covered and is not protected from the sun and high temperatures and can lead to decomposition of sodium hypochlorite stability. **CONDITION: The steel structure is in good and operable condition. Exposed portions of the concrete foundation and walls are cracked and require replacement. The existing sodium hypochlorite tank and duplex chemical pumping system require replacement. The eyewash station also requires replacement. It is also recommended to replace the chemical rate of flow controllers inside the Wastewater Treatment Plant control building to allow for the flow proportional operating of the chemical pumps. The 1993 fiberglass hypochlorite tank requires demolition and removal from the Chemical Containment Structure.**

7. Effluent Sampling/Metering Structure

Following the chlorination basin is a small concrete rectangular flow meter/sampling vault for sampling and flow measurement activities. The disinfected wastewater flows by gravity from the chlorination/dechlorination basin, through the effluent/Sampling Vault, prior to being discharged to the Imperial Irrigation District "R" Drain. The vault includes a magnetic flow meter for recording effluent flows. The Flowmeter/Sampling Vault Facility has not had any major capital improvements since it was constructed as part of the 1993 NSD WWTP Improvement Project. The magnetic flowmeter was replaced as part of the 2010 NSD WWTP Improvement Project. **CONDITION: All facilities, including the PCC Structure, Flowmeter, and Sampling Station are in operable and good**

condition. The Flowmeter/Sampling Vault, however, is in need of railing due to safety concerns along the exterior of the sampling vault.

8. **Laboratory and Staff Building**

The Niland WWTP also includes a laboratory/control building. The laboratory and staff building are located just east of the influent pump station. The existing 31'-8" x 41'-8" Operations and Laboratory Building consists of a slab on grade metal building and includes an Office/Meeting Room, Electrical Power and Control Room, Bathroom and Laboratory Room. The electrical power and control facilities are located in the laboratory building. The Laboratory Building has not had any capital improvements since it was constructed as part of the 1993 NSD WWTP Improvement Project. **CONDITION: All facilities including the Laboratory Building, Electrical / Control Room, Office / Meeting Room, and Restroom are in serviceable and good condition. No capital improvements are presently required for the Laboratory Building.**

9. **Ancillary Components**

Other ancillary improvements include an unlined emergency overflow basin and an area for sludge dewatering.

Wooden Entrance Bridge at Alcott Road – There is an existing wood bridge across the "R" Drain that must be accessed in order to reach the WWTP. Although there is no information regarding the age of the bridge, the bridge has not been retrofitted under any of the documented improvements at the NSD WWTP. **CONDITION: The existing wooden entrance bridge into the NSD WWTP does not allow access for any vehicles greater than 2 tons, due to its dilapidated condition. This does not allow for large equipment or heavy trucks to use the access bridge. Alternate routes are required to access the NDS WWTP for trucks and vehicles greater than 2 tons.**

Potable Water Treatment System (System and Piping) – The existing non-potable Water Treatment System is composed of a pond filled with irrigation water as provided by the Imperial Irrigation District and does not meet the minimum requirements of the Imperial Health Department. A small centrifugal pump conveys water from the pond to a pressurized hydro-pneumatic tank. The hydro-pneumatic tank pressurizes the downstream water pipeline system that is located throughout the WWTP site. It is important to note that the Water System is not a potable water system. The existing non-potable Water System services the eye wash stations and restroom facilities and laboratory sink. The hydro-pneumatic tank and water pipeline system experiences clogging. The hydro-pneumatic tank and water pipeline system experience frequent operation and maintenance problems due to the solids contained with the IID supplied raw water. Potable Water for drinking and potable use is purchased and trucked in by a vendor. **CONDITION: There is currently no potable water treatment system on site. The NSD relies on bulk potable water. A potable water treatment (package treatment system) in conformance with the State Water Resources Control Board – Division of Drinking Water requirements and replacement of the water pipeline system**

within the NDS WWTP is required.

Power Generator Set –The existing generator set was installed as a capital improvement during the 2010 NSD WWTP Improvement Project. The generators are tied to an existing Automatic Transfer Switch (ATS) which is located within the existing Laboratory Building's Electrical / Control Room. It is necessary for the Plant Operator to manually switch the power from normal power to the emergency generator power whenever a power outage occurs. **CONDITION: The existing generator set is operable and appears to be in a good condition. The existing ATS does not automatically switch power to the Generator Set when a power failure from Imperial Irrigation District's normal power source occurs and must rely on operator action. The ATS must be retrofitted for automatic function.**

Sludge Basin- There is a native earth sludge basin located east of the chlorination/de-chlorination structure for the periodic cleaning of the aeration basins and chlorination/de-chlorination basin. **CONDITION: The sludge basin appears to be in good condition. No Capital Improvements are recommended at this time.**

Emergency Overflow Basins- There are three (3) emergency overflow basins located at the Niland Sanitary District Wastewater Treatment Plant: Basins 1A, 1B and 2. The basins are illustrated on **Figure 2**, the Wastewater Flow Schematic. Emergency Overflow Basins 1A and 1B have been components of the wastewater treatment plant since the activated sludge Plant was placed in service in 1974. Emergency Overflow Basin 2 was the native earth borrow area used to construct the Aeration Basin earth embankments during the 1993 wastewater treatment plant improvement project. Emergency Overflow Basin Number 2 was converted into a wastewater emergency overflow basin as a component of the 1993 wastewater treatment plant improvement project. Emergency Overflow Basins 1A and 1B were converted from emergency wastewater storage ponds to stormwater retention basins during the 1993 NSD WWTP improvement project. They now serve the dual purpose of stormwater and emergency overflow basins. Any potential need for discharge would go back to the treatment system **CONDITION: The emergency overflow basins appear to be in good condition. No Capital Improvements are recommended at this time.**

Emergency Bypass Pipelines- There is an emergency bypass pipeline which directs raw wastewater from a gravity overflow pipe in the influent pump station to Emergency Overflow Basin 2. There is also a gravity emergency bypass line upstream of the headworks structure extending from the sanitary sewer collection system pipeline in Alcott Road which can divert raw wastewater into Emergency Overflow Basins 1A and 1B. **CONDITION: The bypass pipelines appear to be in good condition. No Capital Improvements are recommended at this time.**

B. Previous Considerations Alternatives and Preferred Project Alternative for Treatment

Since 2007, and over the course of ten (10) years, several alternatives have been considered by the NSD and partner agencies such as the Regional Water Quality Control Board, the US Environmental Protection Agency and USDA Rural Assistance which have provided the funding and technical reviews of the same. All of the PER's are summarized in **Table C**, followed by a brief overview and the preferred project alternative as selected by NSD and partnering funding agencies for funding under USEPA Border Environmental Infrastructure Fund Program and USDA Rural Assistance Program.

Table C
Summary of Alternatives Previously Considered for Treatment

PRIOR ALTERNATIVES CONSIDERED FOR WASTEWATER TREATMENT COMPLIANCE	REPORT DATE	DETERMINATION
WWTP System Improvements • Repair/Replace Components of Current Process • Abandonment of Basin for UV & Sand Filter	2007-NOLTE	Technically Unfeasible
WWTP Existing System Modifications • Precipitation/New chemical dosing system • Ion Exchange System • Reverse Osmosis System	2012 - AMEC	Financially Unfeasible
Discharge to Calipatria WWTP for Treatment	2012 - AMEC	Financially Unfeasible and Calipatria Would Not Accept Wastewater
Discharge-Industrial Use (Geothermal)	2012 - AMEC	Financially Unfeasible
Land Disposal On-Site Percolation Ponds	2012 - AMEC	Technically Unfeasible
Land Disposal On-Site Injection Wells	2012 - AMEC	Technically Unfeasible
WWTP System Improvements • Repair/Replace & Ion Exchange North Side • Repair/Replace & Ion Exchange South Side	2014-NV 5	Technically Unfeasible
Discharge-Industrial Use (Turbine & Solar Plants)	2014-NV 5	Technically Unfeasible
Discharge to Calipatria WWTP for Treatment	2014-NV 5	Financially Unfeasible and Calipatria Would Not Accept Wastewater
Land Disposal – Percolation & Evaporation • West & Northwest for Evaporation • East & Northeast for Evaporation • IID Managed Marsh Land	2014-NV 5	Percolation Unfeasible Evaporation Viable
Wetlands Alternative	2016- The Holt Group	Technical Challenges Due to Sulfide & Ammonia
Evaporation Ponds Alternative (West)	2016-The Holt Group	Evaporation Ponds Feasible

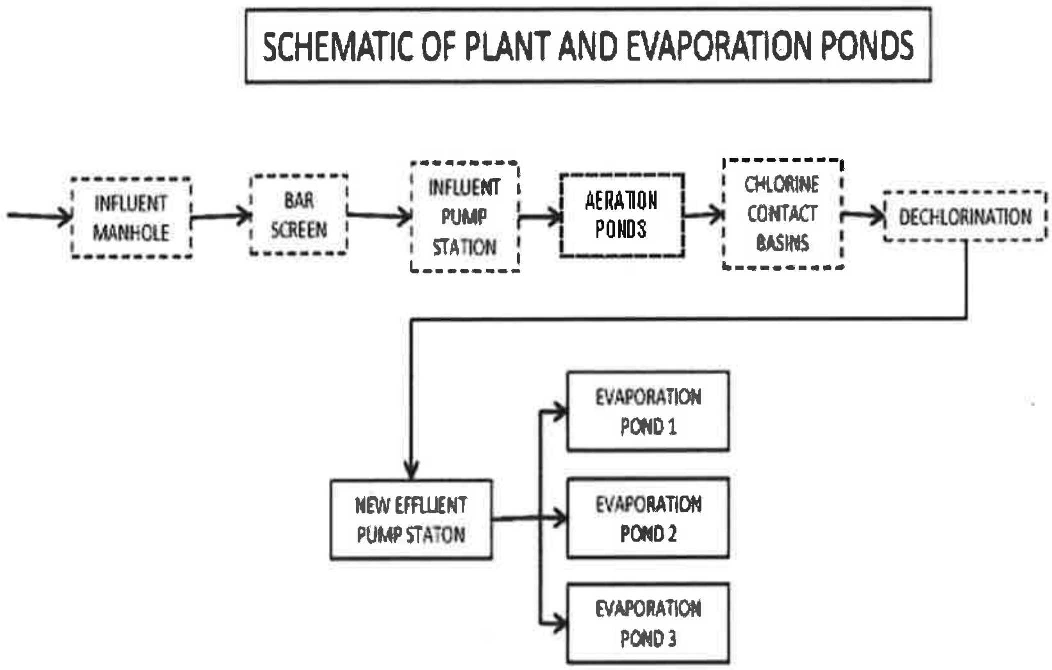
The PER prepared by Nolte and Associates considered improvements to the Wastewater Treatment Plant to address deficiencies related to exceedances in the biological oxygen demand (BOD) discharge limit. In 2012, AMEC Environmental & Infrastructure, Inc. considered Wastewater Treatment Plant Improvements consisting of 1) precipitation/new chemical dosing system, 2) the installation of a package ion exchange system, and 3) installation of a reverse osmosis system. Additionally, AMEC further assessed sending wastewater to the City of Calipatria and discharging treated wastewater effluent off-site for use by a nearby Geothermal Facility. Percolation ponds and injection wells were also alternatives considered under the 2012 PER. In 2014, NV5 (Nolte Associates) completed a draft PER that further evaluated WWTP improvements, elaborated on Industrial Use Discharge, considered conveyance to the City of Calipatria, and evaluated land discharge through evaporation and percolation. Although collection system alternatives were considered, none are noted for the purpose of this discussion. Please note that all PER's also considered the "no-action" alternative. The latest PER was completed in 2016 by The Holt Group, Inc which considered a Wetlands Treatment Alternative and further examined the Evaporation Ponds Alternative at different site locations.

The evaporation ponds project alternative was noted as the most viable and feasible alternative both under the 2014-NV5 PER Report and under the 2016 PER Report prepared by The Holt Group. The evaporation ponds would provide a "no discharge" land application effluent management system and would eliminate the need for a NPDES Permit. The Regional Board has indicated that new WSD (Waste Discharge Requirements) that would be issued by the Board is expected to eliminate the need to monitor for copper and thallium. The 2016 PER Report by The Holt Group, provided detail discussion on design and technical considerations to Evaporation Ponds as noted in the following narrative:

Considerations For Evaporation Ponds

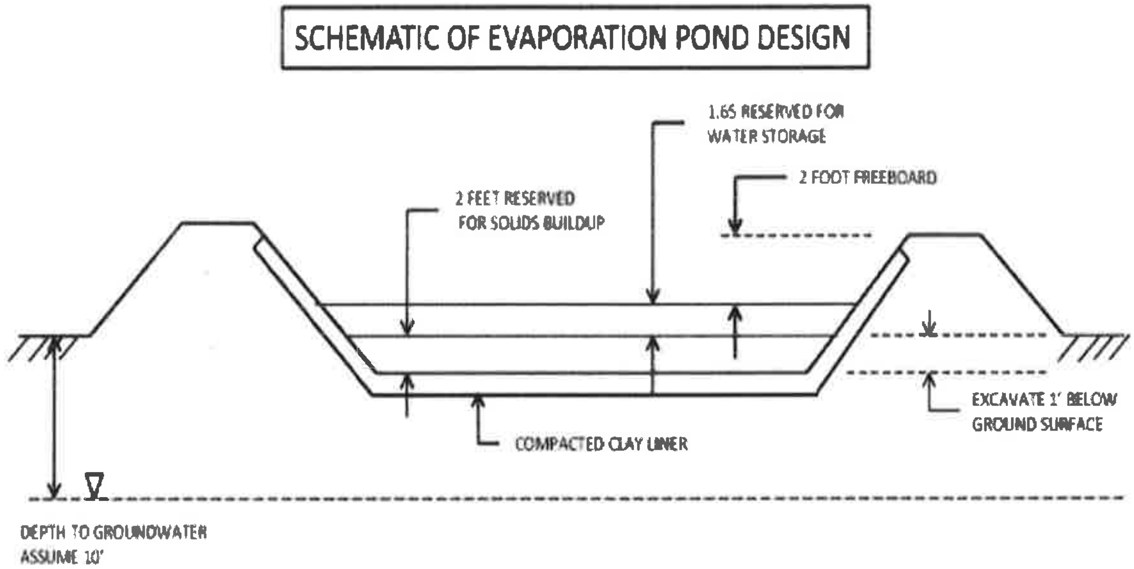
Raw wastewater would continue to be treated under the existing process. Rehabilitation to the existing system would be necessary, but no changes to treatment procedure would be needed. The treated effluent would then be transmitted over to newly constructed evaporation ponds. The ponds would be located immediately adjacent to the existing NSD facility on land proposed to be acquired from the Imperial Irrigation District. Several factors were considered including existing conditions of the site and the necessary buffer areas that would be required by the Imperial Irrigation District. The evaporation ponds alternative would require three new basins and a new (additional) effluent pump station to transmit the effluent from the wastewater treatment plant to the evaporation ponds instead of discharging to the "R" Drain. **Figure 3** is a flow diagram of the recommended plant and evaporation ponds flow process.

Figure 3



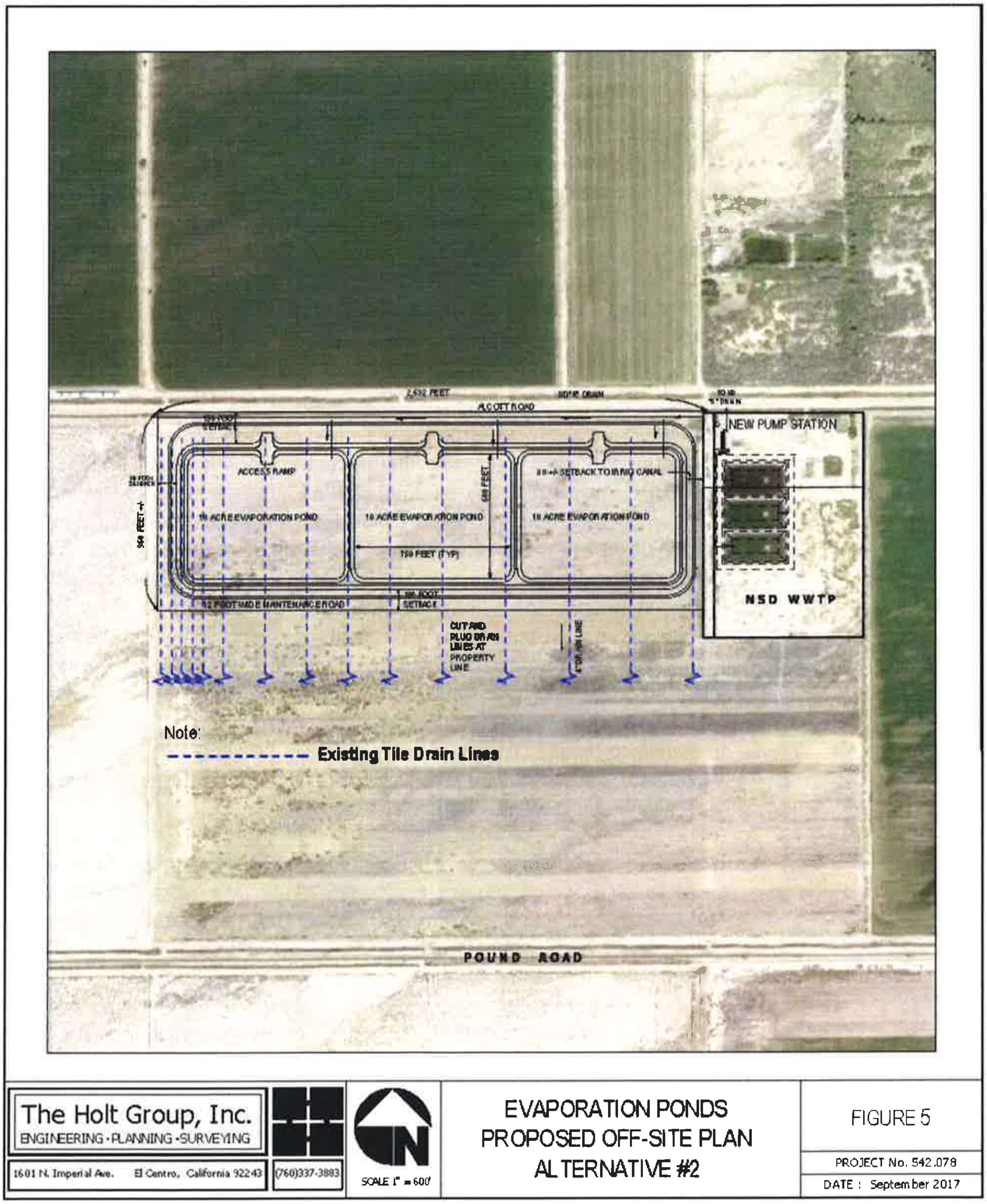
- **Design**- The evaporation ponds are recommended to be designed for an annual flow of 150,000 gpd. The transmission pipeline would need to be jack-and-bored under the existing IID drain that runs along the west side of the WWTP site. Three evaporation basins will be required since the current flows average about 63,000 gpd. During the winter, portions of the flows may need to be sent to a second basin for maintenance. It is projected that approximately 5 inches of solids per year will accumulate when the basins are operating at full capacity assuming that the solids will compact to a concentration of about 5,000 mg/L. Thus, about two feet of depth will be reserved for solids accumulation as noted in **Figure 4**. It is further recommended that the pond bottom consist of 2 feet of native silty clay compacted to 90 percent of maximum density per ASTM D-1557. As the silty clay soil in the bottom of the evaporation basins becomes saturated, the infiltration rate will likely decrease to nearly zero. It is recommended the side-slopes of the evaporation ponds be protected by covering the side-slopes with a high density polyethylene (HDPE) liner or a soil cement.

Figure 4



- **Maintenance**- On average, the plant discharges about 50 mg/L suspended solids which will accumulate in the evaporation basins and will need to be cleaned out periodically (approximately once every five years). Each basin will have a ramp to allow equipment to enter the basin and remove the dried solids. The solids will compact as they settle to the bottom of the basin. To dry the solids, the basin will be taken out of service and allowed to dry. Periodically during the drying period, the solids will be windrowed to break up the top crust and facilitate drying.
- **Land Requirement** The required land area of the evaporation ponds was based on the water balance without consideration of seepage. The water balance carried out for the design flow showed that 58 acres was sufficient for an average annual flow of 150,000 gallons per day. As noted in Figure 4, the maximum depth of water was projected to be 1.65 feet. The land to the west is owned by the Imperial Irrigation District (IID). Please refer to **Figure 5** for proposed site layout at ultimate build-out. Discussion regarding land transfer via a possible Lot Line Adjustment has already been initiated and IID has agreed to its sale. An appraisal was completed in April 2016. The appraised value of the land was $174,000 instead of the $330,000 originally budgeted.

Figure 5-Evaporation Ponds Proposed Site Plan



- **Phasing-** Although phasing is optional it is not recommended. Each of the three proposed evaporation ponds is capable of evaporating an average annual flow rate of 50,000 gallons per day. Under Phase I, a minimum of two (2) evaporation ponds are required at the present average annual flow rate of 63,000 gallons per day and peak flow of 83,000. Phase II, is not required for wastewater effluent evaporation until the average annual flow rate exceeds 80,000 gallons per day. Expansion would need to be initiated, per Regional Water Quality Control Board Standards, once the current operation reaches 80% of its capacity. However, the Phase II evaporation pond should be constructed concurrent with Phase I evaporation ponds to allow the two Phase I ponds to be periodically drained for cleaning of vegetation and settled solids. During maintenance, it will be necessary to divert the wastewater influent flow into the third evaporation pond until the Phase I evaporation ponds are cleaned and placed back in service.

- **Construction Constraints -** The proposed evaporation pond site has tile pipelines that will need to be severed and plugged at the boundary of the evaporation pond project, after the IID required buffer zones are observed. Pipelines will need to be plugged and severed in order to prevent any treated effluent from making its way into the subsurface field drainage system and eventually the R drain. According to USGS maps, the site slopes to the east at a slope of about .004 feet rise per foot of run or about 8 feet across the site. To minimize earthwork, the evaporation ponds will be designed at different bottom elevations. Geotechnical studies will be needed to assist with design and it is anticipated that the work will include clearing and grubbing to remove agricultural related materials. The studies will also indicate whether the clay content of the soils will allow local materials to be used for the pond liner. Since the fields are open and easily accessed, the work can be carried out without interfering with plant operations until the final connections are made.

- **Environmental Concerns-** The proposed improvements under the Evaporation Ponds preferred alternative would take place outside of the NSD's treatment plant facility. The footprint of an evaporation facility west of the Niland Wastewater Treatment Plant would be approximately 58 acres of undeveloped land that is currently out of agricultural production. Potential environmental concerns would be associated with habitat value. The project, however, would cease effluent discharge violations from E-Coli (bacteria), copper, and thallium. Thallium in itself is very toxic and continued discharge could affect aquatic life. Aquatic species are further sensitive to copper. Please refer to corresponding Environmental Information Document filed through the USEPA for detailed environmental concerns.

C. Summary of Applicable Costs to Wastewater Treatment Facilities

Costs For WWTP Rehabilitation

Several capital improvements were recommended to the wastewater treatment plant. Specifically, 1) the repairing or replacing of existing facilities such as manhole frames, sections of HDPE liner, p.c.c. walls and ceilings, handrails, eyewash stations, concrete spalling, and resilient wedge gate valves, 2) installation of Stainless Steel Grating, 3) installation of sodium hypochlorite tank, 4) installation of sodium hypochlorite duplex pumps and piping system, 5) installation of chemical rate of flow controllers, 6) installation of sodium bisulfite duplex pumps, 7) installation of aluminum access hatch, 8) installation of potable water treatment system, 9) installation of automatic transfer switch, and 10) Bridge Retrofit. Table D provides a summary breakdown of these costs, while Table E summarizes all of the associated and corresponding permitting costs, professional service costs, applicable tests and incidentals additional to construction costs.

Table D
WWTP Capital Improvement Costs

Estimated Costs of WWTP Improvements	
Cost Item	Total Cost
1. Repairing or replacing of existing facilities	$153,300
2. Install Stainless Steel Grating	$1,200
3. Install Sodium Hypochlorite Tank	$12,600
4. Install Sodium Hypochlorite Duplex Pumps	$9,500
5. Install Rate of Flow Controllers	$18,900
6. Install Sodium Bisulfite Duplex Pumps	$9,500
7. Install Aluminum Access Hatch	$4,500
8. Install Potable Water Treatment System	$115,000
9. Install Automatic Transfer Switch	$45,000
10. Bridge Retrofit	$200,000
TOTAL CONSTRUCTION COST ESTIMATE	$569,500

Table E
Refined WWTP Capital Improvement Cost Estimates

WWTP ITEMS	Subtotal	Total
Environmental Services – (NEPA completed concurrent with PER)		
- CEQA Environmental Report	$ 0.00	
- NEPA Environmental Report	$ 0.00	
- Environmental Mitigation Contract Services	$ 0.00	$0.00
Sub-Total Soft Cost Service:		**$ 0.00**
Engineering Services		
Basic Services:		
- Preliminary Engineering Report (PER)	N/A	
- Preliminary and Final Design Phase Services (12%)	$ 48,700	
- Bidding/Contract Award Phase Services (2%)	$ 8,100	
- Construction and Post-Construction Phase Services (w/o inspection) (2%)	$ 8,100	
- Resident Project Representative Services (resident inspector) (10%)	$ 40,600	
Additional Services:		
- Permitting (CUP concurrent w/ evap ponds & Potable Water System Permit)	$ 10,000	$140,500
- Regulatory Compliance Reports	$ 5,000	
- Environmental Mitigation Services (Construction Phase)	$ 7,000	
- Easement Acquisition/ROW's Services (Construction Phase)	$ 0	
- Surveying Services (Construction Phase)	$ 0	
- Operation & Maintenance Manual(s)	$ 13,000	
- Geotechnical Services	$ 0	
- Hydrogeologist Services	$ 0	
- Materials Testing Services (Construction Phase)	$ 0	
- Other Services (describe)	$ 0	
Sub-Total Engineering Service:		**$140,500**
Equipment/Materials (Upgrades to existing WWTP IID infrastructure to integrate solar connection)		$ 10,000
Construction Cost Estimate (Attach breakdown)		$ 369,500
Contingency (10%)		$ 36,900
Sub-Total Material & Construction Costs:		**$ 416,400**
Utility Costs (Bridge Retrofit to IID)		$ 200,000
Sub-Total Utility Construction Costs:		**$ 200,000**
TOTAL WWTP IMPROVEMENT PROJECT COST ESTIMATE		**$756,900**

Costs For Evaporation Ponds New Construction

Construction Costs-The following tables provide construction cost estimates for the Evaporation Ponds as the preferred treatment alternative. Cost comparisons were done considering both a Clay Liner and an HDPE Liner. A detailed breakdown is being provided only for the Clay Liner which is the recommended alternative.

Table D

Evaporation Ponds Cost Estimate Summary per Liner Option

Evaporation Ponds Cost With Liner Options	
Cost Item	Total Cost
1. Evaporation Ponds Cost With Clay Liner	$4,071,400
2. Evaporation Ponds Cost With HDPE Liner	$7,632,300

Table E

Evaporation Ponds Detail Cost Estimate with Clay Liner

CLAY EVAPORATION PONDS CONSTRUCTION COST ESTIMATES		
Cost Item	Subtotal	Total Cost
1. Construction Costs		$2,778,600
Clearing and Grubbing	$ 156,800	
Cut Volume	$ 484,000	
Compact Fill	$ 414,000	
Compacted Clay Liner	$365,900	
HDPE Liner – Side slopes	$ 491,970	
8" C-900 PVC Pipe Underground	$ 198,750	
8" Plug Valves and Valve Boxes	$ 9,600	
5hp Duplex Package Pump Station	$ 135,00	
Fencing	$ 189,000	
Contingency 10%	$ 252,600	
2. Land Acquisition[1]		$ 330,000
3. Design, Bidding & Engineering		$ 722,300
Design 12% of Construction Costs	$ 333,400	
Bidding 2% of Construction Costs	$ 55,500	
Construction Management 12% of Construction Costs	$ 333,400	
4. Reports Studies & Surveys		$ 110,500
SWPP Preparation	$12,000	
Geotechnical and/or Hydrogeological Investigations	$58,500	
Field Survey	$40,000	
5. Permit Costs		$80,000
6. Other Soft Costs		$50,000
	TOTAL COSTS	$4,071,400

[1]Assumed Market Value of Land/Appraisal and Ultimate Cost has been lowered to $174,000

Operation and Maintenance Costs

As previously noted, the annual operation and maintenance costs include Administrative, Personnel and Insurance costs in addition to other costs associated with Chemical Usage, Monitoring and Testing, Professional Services, Residuals/Waste Disposal, and other incidental costs of maintaining a wastewater treatment facility. Following is a brief overview of the anticipated operation and maintenance costs associated with the proposed preferred alternative. Operations and maintenance costs for a facility managed by outside consultants was not considered under the 2016 PER but is discussed under the Rate Study Assessment Report that accompanies this Technical Report.

Table F

Operation and Maintenance Cost - Post Construction

O&M Cost Estimate			
	Current No Project Alternative	Evaporation Pond w/ Clay	Evaporation Pond w/ HDPE
Personnel Costs (salary, insurance, benefits, payroll tax)	$116,700	$119,000	$119,000
Office Expenses (office supplies, etc.)	$5,100	$5,100	$5,100
Insurance (workman's comp, property, liability)	$9,100	$9,100	$9,100
Professional & Special Services (Monitoring & Testing & Professional)	$13,500	$21,800[1]	$21,800[1]
Energy & Utility Costs (energy, raw water, etc)	$32,100	$32,100	$32,100
Training & Travel	$2,100	$3,600	$3,600
Operations/ Structures/Improvements Process Chemical Residuals/Waste Disposal Maintenance	$107,000	$108,500	$108,500
Total:	**$285,600**	**$299,200**	**$299,200**

1
P

[1]Proessional And Special Services are only initial costs and will not continue post construction at these levels after FY 22/23.

The NSD currently spends an estimated $107,000 for Operations Structures and Improvements. It is recommended that an additional $1,500 be budgeted to accommodate the cost changes anticipated with the evaporation ponds alternatives: $1,500= [+$4,000 (disking evaporation ponds)- $3,000 (chemical savings)+ $500 (vector control)].

- **Process Chemicals:** It is expected that the chemical costs for the plant with evaporation ponds will be less than for the existing plant. Secondary effluent pumped to the evaporation ponds will be disinfected with sodium hypochlorite. The chlorine will control algae buildup and odors in the evaporation basins. It is assumed that sodium bisulfite, currently used for dechlorination will no longer be required resulting in a savings of about

$3,100 per year at current flows. The estimated chemical cost for the sodium hypochlorite chemical disinfection system will continue to remain the same and is $4,000/year for current flows and $17,000 at full capacity (150,000 gallons/day average daily flow).

- **Residuals/Waste Disposal**: The WWTP currently necessitates sludge removal. It is recommended that an amount of $4,000 be budgeted annually for management of sludge in the aeration ponds that will require removal every five years at an estimated cost of $20,000.

  The solids that accumulate in the bottom of the evaporation ponds will need to be disked into the clay pond bottoms after the ponds are dried out. It is recommended that an amount of $4,000/year be budgeted for the costs to contract with a farmer to disk the bottom of the evaporation ponds.

- **Maintenance of Operations, Equipment, and Grounds:** Occasional spraying to control vectors at the evaporation pond site would also be required. Site grading and clean-up work at the existing NSD WWTP would continue to be required, regardless of the proposed alternative.

D. Optional Components/Alternatives if Financing is Cost Prohibitive for WWTP Facility

The wastewater treatment plant's recommended improvements are comprehensive recommendations in order to address health, safety and compliance factors. There are no optional components recommended for elimination from the wastewater treatment improvement project as recommended under the 2016 PER prepared by The Holt Group, Inc and again summarized herein.

IV. Wastewater Collection System Conditions & Recommendations

As previously noted the NSD's sanitary sewer collection system dates back to the 1940's with limited system section improvements over the years. There is a total of 408 physical wastewater service connections and 718 wastewater service users under the NSD sewer collection system for rate application purposes. The users are broken down by four major categories: 1) residential, 2) commercial, 3) industrial/other, and 4) available service/undeveloped. Fees are assessed to all users including undeveloped lots. No major industrial waste generators are serviced. The NSD does not operate any septage receiving station at the treatment facility or anywhere within the collection system. However, the operators report that there is an active dump station near the Chamber of Commerce Building in Niland that is independently operated by the Chamber.

A. Collection System Findings and Conditions

Components of the existing sanitary sewer collection system has been rehabilitated in previous years under various Capital Improvement Projects. A comprehensive inspection and video documentation of the Niland Sanitary Sewer District Wastewater Collection System was completed over ten (10) years ago, in 2006. It appears that much of the sanitary sewer collection system was found in a poor or failed condition except for the sanitary sewer outfall pipeline section extending south of Noffsinger Road to the Wastewater Treatment Plant.

The last documented wastewater collection system improvements were documented in 2007/2008 under which 4,000 lineal feet of pipeline were improved via slip-lining as a result of the 2006 study. According to the Nolte Engineering Plans dated January 2007, the slip lining of the trunk main pipeline section along Highway 111 from Noffsinger Road to First Street was completed. In addition, the slip lining of branch pipeline sections along First Street, Main Street, Third Street, Fourth Street and East Noffsinger Road was completed in the Town Site of Niland east of Highway 111 and north of Noffsinger Road. A total of 4,020 lineal feet (¾ mile) of the sanitary sewer pipeline collection system was slip lined. In addition, manholes were improved during the 2007 Wastewater Collection System Improvement Project. The interior of a total of 14 manholes were grouted with epoxy, 18 manholes were raised to grade, 25 manholes that were buried were opened and inspected and 19 manholes that were sealed shut were opened and inspected.

Subsequently, in 2014, there was a collection system infiltration study completed by NV5 which recommended several improvements to the sanitary sewer collection system. The existing condition of the branch collection pipelines was not updated, obtained, reviewed, or evaluated as part of the 2014 study. The trunk main pipeline along Highway 111 which collects Wastewater flow from the branch pipelines and the outfall pipeline along Alcott Road were the pipeline sections studied by the report. Testing for copper and thallium did take place at the time of the 2014 study. The following items summarize the findings and conditions within the NSD Collection System as a general overview of collection system components. Engineering recommendations are incorporated in the items, as applicable. The following items also further examine the potential source for copper and thallium noted in the 2014 report.

1. **<u>Sanitary Collection Lateral Pipelines</u>**

The NSD operates approximately 6 miles of sewer collection pipelines. The sewer collection pipelines flow by gravity. The pipelines range from 4-inches to 10-inches in diameter and are primarily situated in a grid-like pattern within an approximate 0.50 square mile radius, encompassing the Niland Community. The collection system consists of approximately 31,500 feet of vitrified clay pipe (VCP) and polyvinyl chloride pipe (PVC). **Table G** shows the approximate inventory and length of pipe by diameter within the NSD collection system.

Table G
NSD Sanitary Sewer Collection System Inventory

Pipe Diameter	Length (ft.)
4-Inch Pipe	717
8-Inch Pipe	28,800
10-Inch Pipe	1,980
Total	31,497

The pipelines are believed to generally consist of vitrified clay pipe which is brittle and susceptible to cracking. Cracking can be created or propagated by seismic activity and by highway loads, both of which are prevalent in the area. In addition, clay pipe has short pipe lengths, which increase the number of joints through which groundwater can infiltrate into the collection system. Sections of the collection system were repaired by lining in 2007-2008 resulting in vast reductions in infiltration and inflow, now contributing to increased capacity at the WWTP. **CONDITION: The 2014 NV-5 report, based on a flushing and televising study, noted that the most of the existing pipes, both clay and PVC, are in good condition with some infiltration suspected at IID Canal and Drain crossings. It was recommended that existing laterals along Alcott Road be removed to reduce infiltration into the sanitary sewer pipeline collection system.**

2. <u>Sanitary Main Lines</u>

Sanitary Sewer trunk and outfall pipelines within the NSD collection system are generally 10" in diameter. The outfall and trunk pipelines between the Niland Community and the NSD Wastewater Treatment Plant consist of 10" diameter pipelines located within the Caltrans right-of-way on the east side of the Highway 111 and Alcott Road west of Highway 111 to the NSD Wastewater Treatment Plant. Most segments of the trunk and outfall pipeline between Noffsinger Road and the wastewater treatment facility are believed to be original to the system, dating to the 1940s, 1950s or 1960s. The capacity of the 10" diameter pipelines are adequate considering there has been no significant residential, industrial, institutional, or commercial growth in the Niland community requiring main pipeline capacity increases and given the pipelines possess sufficient capacity to transmit the required projected wastewater flows.

The 2014 NV5 Study was prepared to identify the sources of thallium and copper in the collection system upstream of the NSD WWTP. Although the source of thallium and copper was not identified, several possible sources of the elements were suspected. A possible source of thallium has been suggested to come from the agricultural fields located along the wastewater trunk and outfall pipelines. The Infiltration Report indicated non-detect concentrations for copper and thallium in the IID

Canals. Total dissolved solids (TDS) influent wastewater concentration increases were likely due to infiltration from IID Canals.

It has been recommended by stakeholders that the reduction of inflow to the wastewater collection system trunk and outfall mains along Highway 111 and Alcott Road, particularly in the area of the agricultural supply canals, and open channel drains be pursued in an effort to reduce inflow into the collection system from the IID Canals and Drains. **CONDITION: Infiltration into the NSD wastewater collection system is suspect and it is recommended that reduction in inflow be accomplished by slip lining/rehabilitating the existing wastewater pipelines and replacing deteriorated manholes which allow infiltration of irrigation and groundwater into the collection system. This would include the replacement of the sanitary sewer sections beneath "S" Drain and "S" Lateral at Noffsinger Road and Highway 111 and the "R" Drain at Alcott Road and Highway 111.**

3. Manholes

The sewer collection system is bounded by the Southern Pacific Railroad to the northeast, Noffsinger Road to the south and Highway 111 to the west (although some services may extend further west up to Nieto Road). There is a total of ninety-seven (97) manholes throughout the NSD service area and sewer collection system. Most of the manholes were constructed of brick. **CONDITION: The condition of the manholes in the area during the 2014 NV-5 study was generally considered to be poor. Many manholes could not be opened due to the manhole lid being fused to the manhole ring, likely due to extreme heat, hydrogen sulfide (H2S) gases, corrosion, traffic loading, and infrequency of opening by the NSD's operators. The manholes that could be opened were generally constructed of brick. The mortar between the brick has significantly deteriorated, leaving extensive gaps between some bricks. Specifically, the following manholes were noted as requiring rehabilitation at the time: SSMH #100, SSMH #99, SSMH#98, SSMH #97, SSMH #101, SSMH #102, SSMH #103, SSMH #104, SSMH #105, SSMH #95, SSMH #88, SSMH #121, SSMH #125 and SSMH #124 as illustrated on the NV-5 study wastewater collection system map.**

4. Thallium and Copper Collection System Testing

Under the NV5 2014 Report Field measurements of copper (Cu) and thallium (Tl) in NSD's manholes were tested for possible sources of thallium and copper as well as at water faucets served by Golden State Water Company (GSWC). It was found unlikely that the source of copper and/or thallium is from residential homes. Tests under the same aforementioned study completed from a restaurant found copper and thallium in the water system operated and managed by Golden State Water Company (GSWC). The GSWC samples were consistently the highest concentrations of copper. The concentrations of copper within the collection system downstream of the GSWC sample location were lower than the GSWC samples. Most measurements at manholes had non-dectectable concentrations of thallium (<1ppb) while one test of the potable water source was higher than the thallium MCL of 2µg/L. According to the report, the GSWC samples, taken at a restaurant located at the intersection of

Highway 111 and Noffsinger Road (8010 Highway 111), had comparably medium concentrations of thallium, measuring 2-4 ppb. The thallium concentrations within the NSD manholes were slightly more consistent than the copper concentrations. The data suggests the GSWC to be a probable, significant source of thallium concentration in the collection system.

The Chamber of Commerce RV Dump site, although not tested, should also be considered as a possible source of thallium. The dump site is not secured and usage is based on the "honor system," intended for and used by RV's. It is recommended that suspension of the service be considered. Other possible sources of thallium considered were from rat poisons or from illegal dumping into the sanitary sewer collection system manholes.

B. Previous Considerations for Sewer Collection System

The 2014 Nolte PER and the 2016 PER prepared by The Holt Group, Inc. did not include the Collection System as part of their scope of work. No Alternatives have been considered for the collection system beyond the recommended slip-lining repairs. Under the 2016 PER, the recommendations from the 2014 Infiltration Report were incorporated into the project as requested by USEPA and the RWQCB. Consequently, several improvements are recommended to the outfall pipeline between the Niland community and the Wastewater Treatment Plant located 0.66 miles to the southwest. Specifically, the replacement of the sanitary sewer sections beneath "S" Drain and "S" Lateral at Noffsinger Road and Highway 111 and the "R" Drain at Alcott Road and Highway 111 were incorporated into the recommended project alternative. The manhole replacements and slip-lining proposed are noted in **Figure 6.**

C. Summary of Applicable Costs for Collection System

Table H provides a summary breakdown of costs of the recommended improvements to the NSD wastewater collection system. **Table I**, that follows, summarizes all of the associated and corresponding permitting costs, professional service costs, applicable tests and incidentals additional to construction costs.

Table H
Sewer Collection System Costs

Estimated Costs of Sewer Collection Improvements	
Cost Item	Total Cost
1. Replacement of Pipeline Sections Under Drains/Laterals	$36,200
2. Rehabilitation of Manholes	$285,000
3. Collection System Pipeline Slip Lining & Repairs	$280,300
CONSTRUCTION COST ESTIMATE	$601,500

Figure 6
Proposed Sewer Collection System Improvements

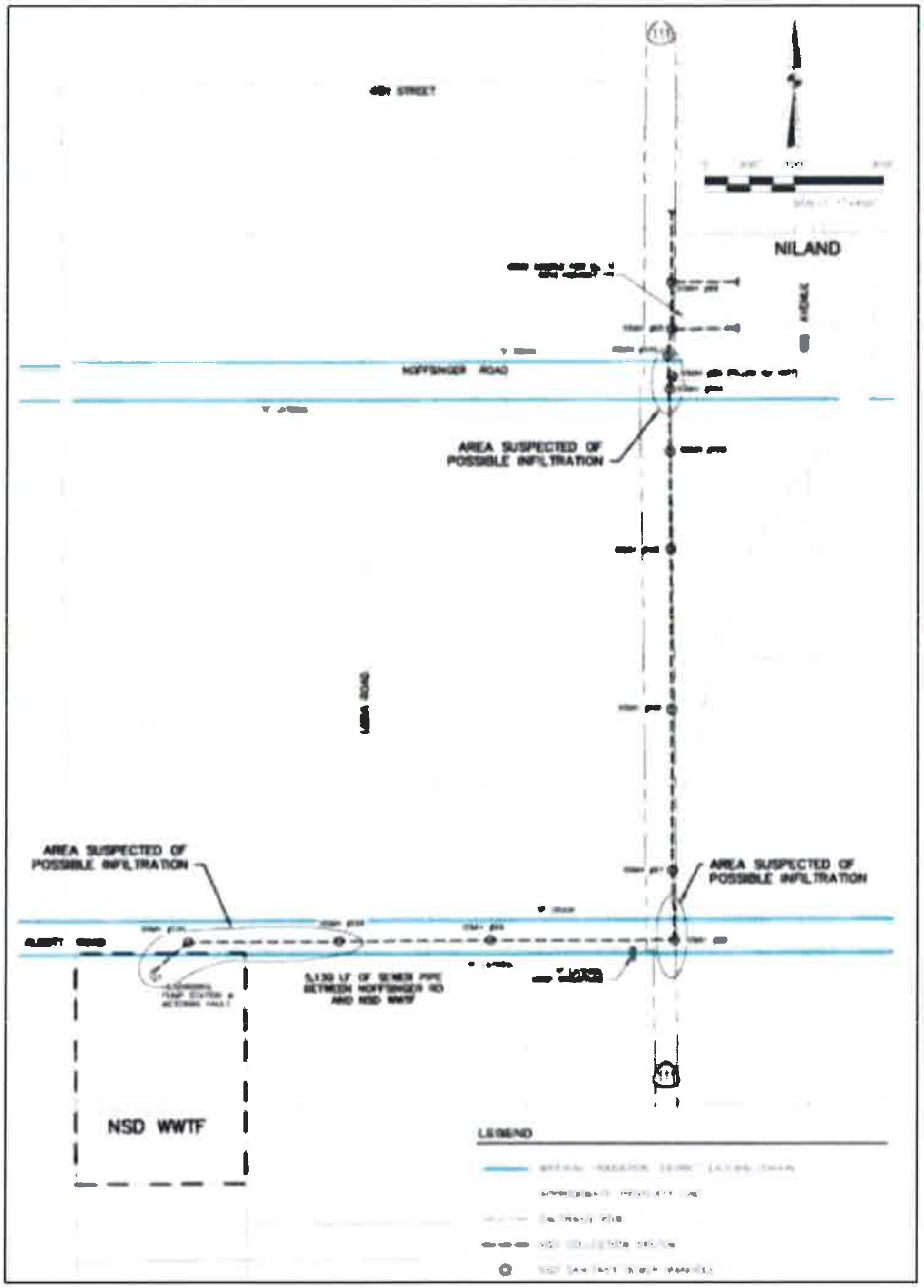


Table I
Refined Sewer Collection System Cost Estimates

COLLECTION SYSTEM ITEMS	Subtotal	Total
Environmental Services –(NEPA completed concurrent with PER).		
- CEQA Environmental Report	$ 0.00	
- NEPA Environmental Report	$ 0.00	
- Environmental Mitigation Contract Services	$ 0.00	$0.00
Total Soft Cost Service:		$ 0.00
Engineering Services		
Basic Services:		
- Preliminary Engineering Report (PER)	$ 0	
- Preliminary and Final Design Phase Services (12%)	$ 79,400	
- Bidding/Contract Award Phase Services (2%)	$ 13,200	
- Construction and Post-Construction Phase Services (w/o inspection) (2%)	$ 13,200	
- Resident Project Representative Services (resident inspector) (10%)	$ 66,200	
Additional Services:		
- Permitting (Caltrans Encroachment, I.C. Encroachment, & IID Encroachment)	$ 65,000	$279,000
- Regulatory Compliance Reports	$ 5,000	
- Environmental Mitigation Services (Construction Phase)	$ 7,000	
- Easement Acquisition/ROW's Services (Construction Phase)	$ 0	
- Surveying Services (Construction Phase)	$ 0	
- Operation & Maintenance Manual(s)	$ 0	
- Geotechnical Services	$ 30,000	
- Hydrogeologist Services	$ 0	
- Materials Testing Services (Construction Phase)	$ 0	
Total Engineering Service:		$ 279,000
Equipment/Materials (Direct purchase, separate from construction bid/cost)		$ 0
Construction Cost Estimate (Attach breakdown)		$ 601,500
Contingency (10%)		$ 60,100
Sub-Total Material & Construction Costs:		$ 661,600
TOTAL SEWER COLLECTION SYSTEM PROJECT COST ESTIMATE		$ 940,600

D. Optional Components/Alternatives to Collection System if Financing is Cost Prohibitive

Although infiltration at the main trunk and outfall lines was suspected, it was not proven. Due to the age of the main trunk and outfall pipelines between the Niland Community and the NSD Wastewater Treatment Plant (over 80 years old) the improvements are recommended with an option to omit the slip-lining costs of \$250,000 ±. Or perhaps slip-lining could be limited to shorter sanitary sewer pipeline sections beneath the IID lateral and drain crossings.

V. NSD Wastewater Treatment Plant Rehabilitation, Evaporation Pond Construction & Collection System Rehabilitation Summary

Although the existing NSD Wastewater Treatment and Collection System is in general need of repair and investment, the treatment adequacy is a compliance factor that is needed to address effluent limit violations for E. Coli, copper and thallium. The Evaporation Ponds with clay bottoms is the preferred alternative to address the current WWTP effluent limit violations. Zero discharge using evaporation ponds to evaporate all of the effluent generated by the NSD Plant is a viable alternative to the continued effluent discharge into the IID "R" Drain under the current NPDES Permit. Without a point source discharge, E. Coli, thallium and copper effluent concentration exceedances may continue to occur and under the Evaporation Ponds preferred alternative, would no longer expose the NSD to the violation and fine consequences of the NPDES Permit.

The evaporation ponds would be sized to manage the annual average design flow of 150,000 gpd (gallons per day) through evaporation via the balancing of the basin inflows and outflows. The 150,000 gpd design flow is reasonable to accommodate modest growth and routine maintenance. The recommended preferred project further includes capital improvements for the rehabilitation of the existing WWTP and to targeted sewer collection pipeline improvements. The retrofit/replacement of the dilapidated wooden bridge used for access into the NSD WWTP is also proposed. These recommendations are critical for the proper and efficient operation of the existing and proposed improvements. The total NSD System Improvement Project would have an estimated cost of **\$5,813,700** as detailed in **Table J.**

Although pre-treatment is not a necessary component under the recommended compliance project, identification of the thallium and copper sources should continue to be pursued by the NSD. An option is for the NSD to temporarily suspend service to the Chamber of Commerce Dump Station for one full calendar year, effective immediately, and allow the continued testing at the WWTP to document any changes to the exceedances of thallium and/or copper. Once the effect is determined the NSD should make a conclusive determination on whether to continue wastewater collection service to the Chamber of Commerce Dump Station.

In order to move forward with the project, as recommended, it is essential that land acquisition be secured from the Imperial Irrigation District for the future construction of the evaporation ponds. It is also critical to secure all financing mechanisms for all phases of the project including Acquisition, Design and Construction.

Table J- Total Proposed Project Cost Estimate

NSD SYSTEM IMPROVEMENT PROJECT		
Project Soft Costs		
Property Purchase / Lease Agreements		$ 330,000
Administration/Legal Counsel		$ 45,000
Environmental Services		
- CEQA Environmental Report (NEPA Complete)	$ 20,000	
- Environmental Mitigation Contract Services (Own Survey)	$ 20,000	$40,000
Sub-Total Soft Cost Service For Evaporation Pond:		$415,000.00
Professional Engineering & Planning Services for System Improvements		
Engineering Services:	$999,700	
- Preliminary Engineering Report (PER)	In Progress	
- Preliminary and Final Design Phase Services (12%)	$ 461,500	
- Bidding/Contract Award Phase Services (2%)	$ 76,800	
- Construction and Post-Construction Phase Services (w/o inspection) (2%)	$ 76,800	
- Resident Project Representative Services (resident inspector) (10%)	$ 384,600	
Additional Planning and Field Services:	$332,300	$1,332,000
- Permitting (CUP, LLA, I.C. Grading, APCD Construction, TCP, TPS, WDR, Caltrans Encroachments, I.C. Encroachments, IID Encroachments, I.C. & Portable Water System Permit)	$ 112,300	
- Regulatory Compliance Reports	$ 15,000	
- Environmental Mitigation Services (Construction Phase)	$ 24,000	
- Surveying Services (Construction Phase)	$ 50,000	
- Operation & Maintenance Manual(s)	$ 26,000	
- Geotechnical Services	$ 95,000	
- Materials Testing Services (Construction Phase)	$ 10, 000	
Sub-Total Professional Service:		$ 1,332,000
Utility and ROW Costs		
- IID Utility Cost (Bridge Work)	$ 200,000	$220,000
- Easement Acquisition/ Right of Way (IID)	$ 20, 000	
Sub-Total Utility Services		$220,000
Construction Costs		
Construction Cost Estimate (Attach breakdown)		$ 3,497,000
Contingency (10%)		$ 349,700
Sub-Total Construction Costs:		$ 3,846,700
TOTAL NSD SYSTEM IMPROVEMENT PROJECT COST ESTIMATE		**$ 5,813,700**

VI. NSD Wastewater System Technical Conclusions & Closing

The existing NSD Wastewater Treatment and Collection System is in need of moderate repair and rehabilitation. Nonetheless, the existing capacity of the wastewater facilities are adequate for current and projected demand. Issues that need immediate attention are associated with treatment adequacy for metals. Because the point source for Thallium and Copper exceedances have not been determined, and are unlikely to be determined given the level of unsuccessful studies, a zero-point discharge was determined to be the most feasible wastewater treatment alternative. The recommended preferred project includes system upgrades and construction of a new evaporation pond alternative. This preferred alternative is technically feasible and when implemented would eliminate risk of continued discharge violations under the current NPDES Permit.

An Environmental Assessment for NEPA Compliance was completed concurrent with the 2016 PER. The evaporation ponds alternative was further determined to be the preferred environmental alternative as it eliminates effluent discharge from entering a receiving water (the IID R Drain). The principal environmental and health issue is that without an action alternative, the chronic condition of the existing treatment deficiencies could result in significant environmental concerns if left unaddressed. The poor effluent quality poses an actual and immediate concern for aquatic life in discharge drains and tributary water sources leading to, and inclusive of, the Salton Sea. A Finding of No Significant Impact was filed by USEPA on June 29, 2016.

Factors not considered under this report is the financial viability of the project. The 2016 PER provided a brief overview of the NSD financial framework and need for a rate assessment. Subsequently, a rate study was completed by the Rural Community Assistance Corporation (RCAC) in January 2017. A separate report will be presented on summary of findings and any potential alternative recommendations on rate factors.