# Appendix I Pipeline Safety Hazards Assessment

# Appendices

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May 2025 | Pipeline Safety Hazard Assessment

# PERFORMING ARTS THEATER, ACCEL CENTER AND LIBRARY PROJECT

Tulare County Office of Education

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Project Number TCOE-01.0

PLACEWORKS

# Table of Contents

# Table of Contents

## *List of Figures*

**Figures**



## *List of Tables*

**Table**



## *List of Appendices*

# 1. Introduction

## 1.1 PURPOSE

This report presents the results of a Pipeline Safety Hazard Assessment (PSHA) prepared for the Tulare County Office of Education (COE), which is planning land acquisition and the construction of new buildings and a performing arts center to the existing COE Liberty Campus in the rural City of Visalia, Tulare County, California. The PSHA evaluates potential exposure and fatality risk to staff and students from underground or at-grade natural gas or hazardous liquid pipeline releases and the potential for flooding from large volume water pipelines.

## 1.2 SCHOOL SITE LOCATION

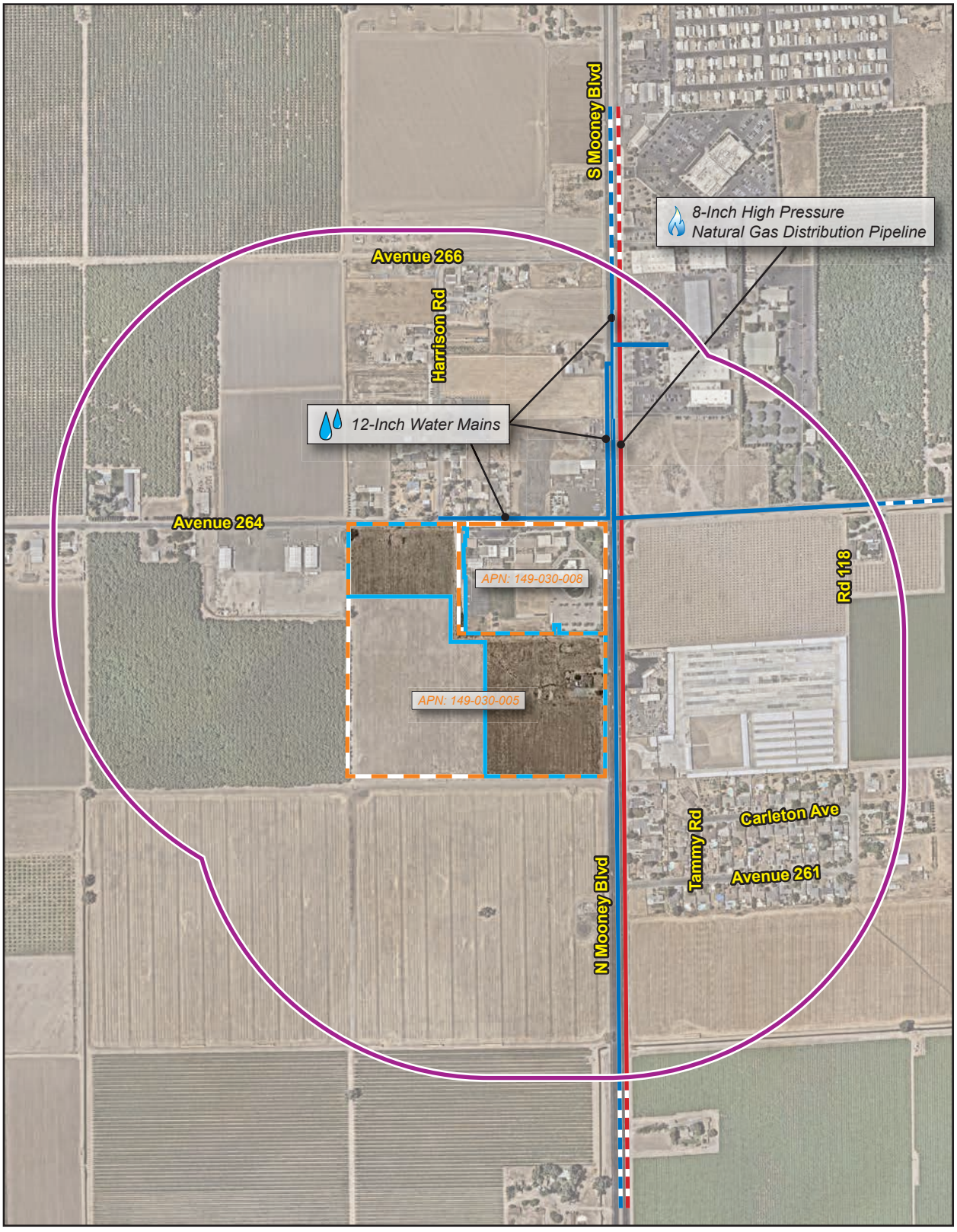
The project site is west and south of the COE Liberty Campus at 11535 Avenue 264/Liberty Road in unincorporated Tulare County, California (Figure 1). The project site currently includes a fallow agricultural field on parcel 149-030-005 (15.23 acres) and a paved driveway and parking area, disturbed land, fencing, and landscaping/grass turf on parcel 149-030-008 (0.4 acres) for a total of approximately 15.63 acres. Local access to the project site is provided by N. Mooney Boulevard/California State Route (SR) 63 and Avenue 264/Liberty Road.

## 1.3 REGULATORY REQUIREMENTS

Under Education Code Section 17251, the California Department of Education (CDE) has authority to approve the acquisition of proposed school sites. The school district must obtain CDE approval for sites to receive state funds under the state's School Facilities Program administered by the State Allocation Board. CDE standards and regulations for this process are presented in California Code of Regulations (CCR), Title 5, Sections 14010, 14011, and 14012. Information on assessing safety hazard related to pipelines is discussed in Section 14010 (h):

> *The site shall not be located near an above-ground water or fuel storage tank or within 1,500 feet of the easement of an above-ground or underground pipeline that can pose a safety hazard as determined by a risk analysis study, conducted by a competent professional, which may include certification from a local public utility commission.*

## Figure 1 - Site Location and Pipeline Map




*Source: Nearmap 2025.*

*PlaceWorks*

By CDE policy,

> *any pipeline that has a maximum operating capacity of at least 80 pounds per square inch (psi), including but not limited to those that carry natural gas, liquid petroleum, fuels or hazardous chemicals, shall be included in a pipeline survey, regardless if the pipeline is classified as a transmission or distribution line. Pipelines located within a railroad or other easement or those pipelines serving gas and oil well sites and fields shall also be included.*

Additional information on pipelines is contained in CDE's School Site Selection and Approval Guide. This document states that CDE will not approve a proposed school site if the site "contains one or more pipelines, situated underground or aboveground, which carries hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas line which is used only to supply natural gas to that school or neighborhood" (CDE 2000).

The CDE's School Site Selection and Approval Guide also contain provisions for evaluating high-pressure water pipelines:

> *To ensure the protection of students, faculty, and school property if the proposed school site is within 1,500 feet of the easement of an aboveground or underground pipeline that can pose a safety hazard, the school district should obtain the following information from the pipeline owner and operator:*
>
> - *Pipeline alignment, size, type of pipe, depth of cover*
> - *Operating water pressures in pipelines near the proposed school site*
> - *Estimated volume of water that might be released from the pipeline should a rupture occur on the site*
> - *Owner's assessment of the structural condition of the pipeline.*

## 1.4 REPORT OBJECTIVES

To meet the requirements of CCR Title 5 Sections 14010 (d) and (h) and CDE's policy on pipelines, this report is designed to meet the following objectives:

- Identify all natural gas and hazardous liquid pipelines located within 1,500 feet of proposed or existing school sites.
- Complete a Stage 1, Stage 2, or Stage 3 risk analysis for each identified pipeline to predict fatality risk.
- Where appropriate, identify and develop mitigation measures to reduce predicted fatality risk to a level below the established significance threshold of one in one million.
- Identify all high-pressure/large-volume water pipelines within 1,500 feet of the proposed school site and evaluate the potential for flooding.
- Where appropriate, identify and develop mitigation measures to reduce flooding impacts to acceptable levels.

## 1.5 ASSESSMENT METHODOLOGY

The CDE has developed and published guidance procedures for evaluating safety hazards associated with natural gas and hazardous liquid releases from underground and aboveground pipelines. A detailed description of the procedures is provided in the Guidance Protocol for School Site Pipeline Risk Analysis (CDE 2007). These procedures were used in conducting the PSHA.

The PSHA process is composed of two steps. The first step (Stage 1) is a risk screening analysis (RSA), based on the distance of the pipeline(s) from the school site and operating characteristics of the pipeline(s). If the screening criteria are met, the level of risk is not significant and no further analysis is required.

If the screening criteria are not met, then the second step of the PSHA process is completion of a Stage 2 quantitative risk analysis (QRA). The Stage 2 risk analysis considers pipeline accident rates, school dimensions, conditional probabilities for ignition, school attendance time, and fatality probabilities for different exposure scenarios (jet fire, flash fire, and explosion) to estimate individual risk (IR). Pipelines within 50 feet of a school site are also subject to a more comprehensive Stage 3 analysis to verify the results of the Stage 2 evaluation.

The total individual risk (TIR) is compared to the significance threshold level of one in one million ($1.0 \times 10^{-6}$) per year (also defined as the individual risk criterion or IRC). If the estimated risk is less than one in one million, then no significant safety hazard is predicted for the school site. If the estimated risk is greater than one in one million, mitigation measures are required to reduce risk to within acceptable limits or a more detailed Stage 3 risk analysis can be conducted to more precisely determine the risk.

In addition to TIR, an estimate of the potential risk for the population present at the school site is determined by calculating the TIR indicator ratio and the population risk indicator. These parameters add an additional perspective by accounting for the site configuration and school population. There is no significance threshold established by the CDE for this evaluation, and this does not replace the TIR estimate, which is the primary decision criteria for evaluating risk at the school site. However, it does provide additional information regarding the magnitude of risk at the school.

The CDE also has developed risk analysis procedures for evaluating flooding associated with releases from large-diameter water pipelines, as described in CDE's *Guidance Protocol for School Site Pipeline Risk Analysis* (CDE 2007). Also, releases from underground water pipelines can cause subterranean erosion of saturated soil, leading to subsidence or formation of a sinkhole. The most likely cause of failure is a large magnitude earthquake and associated strong ground shaking.

# 2. Hazard Assessment

## 2.1 PIPELINE LOCATION AND OPERATIONAL DATA

There is one high pressure natural gas distribution pipeline within 1,500 feet of the school site. No high-pressure natural gas transmission pipelines or hazardous liquid pipelines were identified within the 1,500-foot radius (National Pipeline Mapping System 2025). The location of the pipeline is shown on Figure 1.

Natural gas pipeline information was obtained from the Southern California Gas Company (SCG 2025). There is an 8-inch natural gas distribution pipeline located beneath N. Mooney Boulevard and it is approximately 90 feet east from the project site at its nearest location. SCG provided information regarding the pipeline's maximum allowable operating pressure (MAOP) (SCG 2025). However, SCG requests that consultants do not disclose pipeline details in their reports. Therefore, the pipeline MAOP was used in the analysis and risk calculations, but only the risk assessment methodology and results are presented in this report.

SCG pipelines are constructed of steel and are coated and equipped with an induced current cathodic protection system to minimize corrosion. The pipelines are also buried at least 36 inches below ground surface (bgs). The CDE default distance of 5 miles was conservatively used in this analysis since the distance between isolation valves was not provided by SCG. It was conservatively assumed that all the natural gas in the pipeline within a default distance of 5 miles between isolation valves could be released into the atmosphere.

In the event of loss of pressure, leak detection, or significant deviations from normal operating parameters, emergency procedures would be activated, including contact with the local fire department and emergency personnel. The pipeline is inspected in accordance with federal (Department of Transportation, Title 49 of the Code of Federal Regulations [49 CFR 192]) and State (California Public Utilities Commission [CPUC] General Order 112-F) regulations. The pipeline is surveyed annually to look for pipeline leaks, construction activity, and other factors that may threaten the pipeline. Also, the external and internal corrosion systems and valves are monitored annually.

The California Water Service Company (Cal Water) was contacted to identify any large-volume (12-inch diameter or larger) water pipelines. Based on information provided by Cal Water, there are six large-volume (≥ 12-inch diameter) water pipelines within 1,500 feet of the project site, as summarized in Table 1. The pipeline locations are shown on Figure 1.

**Table 1 Water Pipelines**

| Pipeline Diameter | Pipeline Location | Agency |
|---|---|---|
| 12-Inch | Avenue 264, West of N. Mooney Blvd | California Water Service Company (Cal Water) |
| 12-Inch | Avenue 264, East of N. Mooney Blvd | Cal Water |
| 12-Inch | Western half of S. Mooney Blvd, North of Avenue 264 | Cal Water |
| 12-inch | Eastern half of S. Mooney Blvd, North of Avenue 264 | Cal Water |
| 12-inch | N. Mooney Blvd, South of Avenue 264 | Cal Water |
| 12-inch | Utility Easement East of S. Mooney Blvd | Cal Water |

An evaluation of flooding potential with respect to the school site is provided in Section 2.5.

## 2.2 LAND USE AND TERRAIN

The terrain at the project site is generally flat, with gentle southerly slopes. There are no intervening buildings and/or structures could partially block or buffer vapor releases or jet fires if an incident were to occur involving the natural gas pipeline to the east. Potential ignition sources may include overhead high-voltage electrical lines and/or mechanical/electrical equipment.

## 2.3 RELEASE AND CONSEQUENCE SCENARIOS

In accordance with the CDE Guidance Protocol, two conservative release scenarios were evaluated: 1) a rupture or large-volume release equal to the pipeline's diameter, and 2) a leak or small-volume release from a 1-inch diameter hole. Three potential consequences were evaluated for each release scenario: 1) jet flame, 2) flash fire, and 3) explosion. Results from the ALOHA (Areal Locations of Hazardous Atmospheres) computer analyses indicate that unconfined vapor cloud explosions would not occur in an open environment, such as the area around the school site, and this scenario was not subject to further analysis (USEPA 2016).

## 2.4 STAGE 2 RISK ANALYSIS

The criteria for a Stage 1 screening analysis were not met because the pipeline is less than 600 feet from the school site. Therefore, a Stage 2 risk analysis was conducted to determine the potential risks to students and staff at the proposed school. The input data associated with this PSHA are provided in Appendix A and are summarized in Table 2.

**Table 2 Stage 2 Analysis Inputs**

| Description | Diameter (inches) | Maximum Pipeline Pressure (psig) | Nearest Distance from Pipeline to Property Boundary (feet) |
|---|---|---|---|
| Natural Gas Distribution Pipeline | 8 | Not disclosed in report, per NDA | 90 |

Risk calculation results for the natural gas pipeline is provided in Appendix A. The calculated total individual risks (TIR) for the natural gas pipeline is provided below:

- 8-inch natural gas distribution pipeline – Mooney Boulevard – $4.7 \times 10^{-10}$

The TIR is $4.7 \times 10^{-10}$, which is less than the TIR criterion of one in a million ($1.0 \times 10^{-6}$). Therefore, the risk is less than significant.

As part of the Stage 2 analysis, TIR/IRC ratios and TIR indicator ratios were also determined for the school site, based on the protocol presented in the CDE manual. The school site was divided into three zones of equal length based on the width of the school site that is perpendicular to the pipeline being analyzed (Zones 1, 2 and 3). The TIR was calculated for each zone and compared to the TIR calculated for the nearest property boundary to the pipeline (i.e., TIR Indicator Ratio). The population risk indicator cannot be estimated because the hazard footprint for a pipeline rupture and jet flame release does not reach the school site. The results are summarized in Table 3 and the calculations are provided in Appendix A.

**Table 3 Total Individual Risk (TIR) Analysis**

| Pipeline | TIR | TIR/IRC Ratio | TIR Indicator Ratio | Population Risk Indicator |
|---|---|---|---|---|
| 8-inch Natural Gas Distribution Pipeline | $4.7 \times 10^{-10}$ | 0.00 | 0.25 | n/a |

There are no significance thresholds established by CDE for the TIR/IRC ratio, TIR indicator ratio, or population risk indicator. These values are simply used by CDE reviewers as guidelines to determine the relative potential risk at a school site.

## 2.5 WATER PIPELINE FLOODING ANALYSIS

The CDE requires an evaluation of the risk of releases from large-volume water pipelines (≥ 12 inches in diameter). The CDE Guidance Protocol for School Pipeline Risk Analysis provides a methodology for a qualitative analysis of potential impacts at the proposed school site in the event of a catastrophic pipeline failure and evaluating the potential for flooding. A probability analysis is not required.

Three of the six water pipelines identified in Table 1 are located beneath streets with curbing. Therefore, a pipeline flooding analysis was conducted to determine the depth and location of water flow within the street in the event of a pipeline leak or rupture. For this worst-case analysis, it was conservatively assumed that all the water flowing through the pipelines at their maximum capacity would reach the surface. In addition, no credit was taken for the presence of storm drains along these streets. Release impacts were calculated based on the procedures specified in the CDE manual. The release rate was determined by multiplying the pipe area by an assumed velocity of 5 feet per second (fps). Then the release rate was compared to the carrying capacity of the street, accounting for longitudinal slope, to determine if the water would be contained within the confines of the street curbing (Jeffers & Associates 2006). The results are provided in Table 4.

# 2. Hazard Assessment

**Table 4 Water Pipeline Flooding Analysis: Street Flow**

| Pipeline Diameter (in) | Pipeline Location | Release Rate (cfs) | Street Width (ft) | Depth of Flow in Street (in) | Exceeds Street Carrying Capacity? |
|---|---|---|---|---|---|
| 12-inch | Avenue 264, West of N. Mooney Blvd | 3.93 | 28 | 3.6 | No |
| 12-inch | Western half of S. Mooney Blvd, North of Avenue 264 | 3.93 | 48 | 3.6 | No |
| 12-inch | Eastern half of S. Mooney Blvd, North of Avenue 264 | 3.93 | 40 | 3.6 | No |

Assuming standard 6-inch curb for residential or collector streets.

Assuming a standard 6-inch curb for residential and collector streets, the water released from a full-flow rupture of any of the identified water mains would be entirely contained within the confines of the curbing and would not result in flooding at the school site.

A surface pooling analysis was conducted for the three remaining water main identified either beneath a street with no curbing or within a utility easement. The modeling approach from the CDE guidance manual for a surface pooling analysis assumes that all the released water at a maximum flow rate reaches the surface and forms a circular pool with a water depth of 12 inches (CDE 2007). The results of the surface pooling analysis are provided in Table 5.

**Table 5 Water Pipeline Flooding Analysis: Surface Pooling**

| Pipeline Diameter | Pipeline Location | Release Rate (cfs) | Impact Distance for Circular Pool (ft), radius | Distance from School Site (ft) | Potentially Impacts School Site? |
|---|---|---|---|---|---|
| 12-inch | Avenue 264, East of N. Mooney Blvd | 3.93 | 19 | 375 | No |
| 12-inch | N. Mooney Blvd, South of Avenue 264 | 3.93 | 19 | 75 | No |
| 12-inch | Utility Easement East of S. Mooney Blvd | 3.93 | 19 | 900 | No |

The calculations show that a release from any of the identified water mains in Table 4 would not impact the school site. In summary, a potential break in any of the identified large volume water pipelines located within 1,500 feet of the site would not result in significant flooding at the school.

## 2.6 SUMMARY AND RECOMMENDATIONS

The results of the CDE pipeline protocol analysis indicate a total individual risk of $4.7 \times 10^{-10}$ for the 8-inch high pressure natural gas distribution pipeline, which is much less than the CDE significance threshold of one in a million ($1.0 \times 10^{-6}$). Therefore, the pipeline would not pose a risk to students or staff at the proposed school site and no mitigation measures are required. If a rupture or leak should occur in any of the water pipelines within 1,500 feet of the school site, the results of the flooding analysis indicate that the released water would not result in water depths at the school site that would pose a significant risk to students and staff.

Even though the impact of pipeline releases was found to be less than significant, contact names and numbers for Southern California Gas Company and California Water Service Company and a map of the pipeline locations should be maintained with the school's emergency response plan in case there is a pipeline release in the vicinity of the school site.

# 2. Hazard Assessment

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# 3. References

California Department of Education (CDE), 2007. Guidance Protocol for School Site Pipeline Risk Analysis, Prepared by URS Corporation. February 2007.

_____, 2000. Resources for School Facilities Planning, School Selection and Approval Guide. Prepared by School Facilities Planning Division, CDE, Sacramento, CA.

California Water Service Company (Cal Water), 2025. Information provided from Anna-Marie Leon, Operations Clerk for Cal Water to Steve Bush, PE, Senior Engineer for PlaceWorks on March 5, 2025.

Jeffers & Associates, 2006. Modified Manning's Equation Solver. Version 3.0.

National Pipeline Mapping System, 2025. Natural gas and hazardous liquids pipeline maps accessed on February 14, 2025 at NPMS Public Viewer at https://pvnpms.phmsa.dot.gov/PublicViewer/.

Southern California Gas Company (SCG). 2025. Correspondence between Deanna Pham, Region Associate Engineer, SoCalGas, and Steve Bush, PE, Senior Engineer, PlaceWorks on April 9, 2025.

US Environmental Protection Agency (USEPA), 2016. ALOHA (Areal Locations of Hazardous Atmospheres) computer model, Version 5.4.7, at USEPA website: https://www.epa.gov/cameo/aloha-software.

# 3. References

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# Appendix A. CDE Risk Analysis Summary Forms and Calculations

# Appendix A: CDE Risk Analysis Summary Forms and Calculations

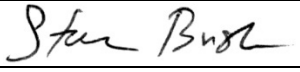
| **Local Educational Agency** | |
|---|---|
| Date: | May 8, 2024 |
| Local Educational Agency | Tulare County Office of Education |
| Contact | Jeff Ramsay, Director of General Services |
| Telephone Number | 559-733-6601, ext. 1204 |
| E-mail address | Jeff.Ramsay@tcoe.org |
| Street Address | 6200 S Mooney Boulevard |
| Department or Mail Drop | |
| City | Visalia |
| County | Tulare County |
| Zip Code | 93277 |
| **School Campus Site** | |
| Name | Performing Arts Theater, AcCEL Center and Library Project |
| Location Description | Addition to 11535 Avenue 264/Liberty Road, Visalia, CA |
| Pipelines of Interest | High pressure natural gas distribution pipeline |
| Operator/Owner | Southern California Gas Company (SCG) |
| Product Transported | Natural Gas |
| Pipeline Diameter (inches) | 8-inch pipeline |
| Operating Pressure (psig) | MAOP = Provided by SCG and analyzed, but not disclosed In report per agency agreement |
| Closest Approach to Property Line | 90 feet |

| **Individual Risk Estimate Result** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Type of Analysis (Check One) | Stage 1 | | Stage 2 | X | Stage 3 | | |
| Individual Risk Estimate Value | 4.7E-10 | | | | | | |
| Individual Risk Criterion | 1.0E-06 (0.000001) | | | | | | |
| IR Significance (check one) | **Significant** | | | | | | |
| | **Insignificant** | X | | | | | |

**Certification and Signatures of Risk Analyst(s)**

This analysis was conducted according to the 2007 CDE Protocol except as noted. All modifications within the Stage 2 framework, and exceptions to the data and processes established in the 2007 CDE Protocol, if any, were based upon my professional opinion and in a manner consistent with the standards of care and skill ordinarily exercised by professionals working on similar projects.

I certify that the estimated risk levels were derived based upon the 2007 CDE Protocol, unless otherwise noted, and that these levels demonstrate, with reasonable expectations of uncertainties for such estimates, that the estimated Individual Risk for the school site, as the site was planned at the time of this analysis, including mitigation measures, if any, meets the Individual Risk Criterion stated in the 2007 CDE Protocol, based on the information provided to me.

| **Printed Name** | **Signature** | **Position or Title** |
|---|---|---|
| Steven J. Bush, P.E. |  | Senior Engineer |

**Notice:** In the event that the Individual Risk Criterion could not be met, at the option of the LEA, CDE will still accept a report for review and consultation with the LEA.

**8-INCH NATURAL GAS DISTRIBUTION PIPELINE**

| Input Data | | |
|---|---|---|
| **Product** | natural gas | |
| **Diameter** | 8 | inches |
| **Pressure** | NDA | psig |
| **R0** | 90 | ft |

| XSEG | RX(1%) | Units |
|---|---|---|
| **XSEG(LJF)** | 0 | ft |
| **XSEG(RJF)** | 0 | ft |
| **XSEG(LFF)** | 0 | ft |
| **XSEG(RFF)** | 1526 | ft |
| **XSEG(LEX)** | 0 | ft |
| **XSEG(REX)** | 0 | ft |

| Base and Conditional Probability Calculations | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Base** | | **Leak** | | **Rupture** | | **Exposure** | |
| **F0** | 4.6E-05 | **PC(L)** | 0.80 | **PC(R)** | 0.20 | **PC(OCC)** | 0.16 |
| **P0** | 4.6E-05 | **PC(LIG)** | 0.30 | **PC(RIG)** | 0.45 | **PC(OUT)** | 0.25 |
| **PAF** | 1.0 | **PC(FIG)** | 0.99 | **PC(FIG)** | 0.99 | | |
| **PA** | 4.6E-05 | **PC(JF)** | 0.98 | **PC(JF)** | 0.98 | | |
| | | **PC(FF)** | 0.01 | **PC(FF)** | 0.01 | | |
| | | **PC(EIG)** | 0.01 | **PC(EIG)** | 0.01 | | |
| **Calculated Values:** | | | | | | | |
| **PA(LJF)** | 0.0E+00 | **PCI(LJF)** | 0.233 | **PCI(RJF)** | 0.087 | | |
| **PA(RJF)** | 0.0E+00 | **PCI(LFF)** | 0.002 | **PCI(RFF)** | 0.001 | | |
| **PA(LFF)** | 0.0E+00 | **PCI(LEX)** | 0.002 | **PCI(REX)** | 0.001 | **PC(EXPO)** | 0.04 |
| **PA(RFF)** | 1.3E-05 | | | | | | |
| **PA(LEX)** | 0.0E+00 | | | | | | |
| **PA(REX)** | 0.0E+00 | | | | | | |
| | | | | | | | |

| Impact Probability Calculations | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Probability Term** | | | | **Values** | | | |
| **PC(LJF) =** | **PA(LJF) x** | **PCI(LJF) x** | **PC(EXPO) =** | 0.0E+00 | 0.23 | 0.040 | **0.0E+00** |
| **PC(RJF) =** | **PA(RJF) x** | **PCI(RJF) x** | **PC(EXPO) =** | 0.0E+00 | 0.09 | 0.040 | **0.0E+00** |
| **PC(LFF) =** | **PA(LFF) x** | **PCI(LFF) x** | **PC(EXPO) =** | 0.0E+00 | 0.002 | 0.040 | **0.0E+00** |
| **PC(RFF) =** | **PA(RFF) x** | **PCI(RFF) x** | **PC(EXPO) =** | 1.3E-05 | 0.001 | 0.040 | **4.7E-10** |
| **PC(LEX) =** | **PA(LEX) x** | **PCI(LEX) x** | **PC(EXPO) =** | 0.0E+00 | 0.002 | 0.040 | **0.0E+00** |
| **PC(REX) =** | **PA(REX) x** | **PCI(REX) x** | **PC(EXPO) =** | 0.0E+00 | 0.001 | 0.040 | **0.0E+00** |

**Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.**

| IR Calculation | | | | |
|---|---|---|---|---|
| | **MAX PF(X)** | | **PC(X)** | **IR(X)** |
| **IR(LJF) =** | 1.00 | | 0.0E+00 | **0.00E+00** |
| **IR(RJF) =** | 1.00 | | 0.0E+00 | **0.00E+00** |
| **IR(LFF) =** | 1.00 | | 0.0E+00 | **0.00E+00** |
| **IR(RFF) =** | 1.00 | | 4.7E-10 | **4.74E-10** |
| **IR(LEX) =** | 0.00 | | 0.0E+00 | **0.00E+00** |
| **IR(REX) =** | 0.00 | | 0.0E+00 | **0.00E+00** |
| | | | | |
| **TOTAL INDIVIDUAL RISK, TIR** | | | | **4.7E-10** |
| | | | | |
| **CDE INDIVIDUAL RISK CRITERION, IRC** | | | | **1.0E-06** |
| | | | | |
| **TIR/IRC RATIO** | | | | **0.00** |
| | | | | |
| **PROTOCOL TIR INDICATOR RATIO** | | | | **0.25** |
| | | | | |

Workbook:TIR CALCS 3.07
Sheet: TIR1

## XSEG Calculations

| Pipe Size, Pressure, and Hazard Type | | | Front Property Line - Begin Zone 1 | | | Begin Zone 2 | | | Begin Zone 3 | | | End Zone 3 -Back Property Line | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pipe Size | Press. | Hazard X | RX (1%) | R0 | XSEG | RX (1%) | R0 | XSEG | RX (1%) | R0 | XSEG | RX (1%) | R0 | XSEG |
| (in) | (psig) | | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft) |
| | | | | | | | | | | | | | | |
| 8 | NDA | LJF | 33 | 90 | 0 | 33 | 520 | 0 | 33 | 950 | 0 | 33 | 1380 | 0 |
| 8 | NDA | RJF | 57 | 90 | 0 | 57 | 520 | 0 | 57 | 950 | 0 | 57 | 1380 | 0 |
| 8 | NDA | LFF | 66 | 90 | 0 | 66 | 520 | 0 | 66 | 950 | 0 | 66 | 1380 | 0 |
| 8 | NDA | RFF | 186 | 90 | 1526 | 186 | 520 | 0 | 186 | 950 | 0 | 186 | 1380 | 0 |
| 8 | NDA | LEX | 0 | 90 | 0 | 0 | 520 | 0 | 0 | 950 | 0 | 0 | 1380 | 0 |
| 8 | NDA | REX | 0 | 90 | 0 | 0 | 520 | 0 | 0 | 950 | 0 | 0 | 1380 | 0 |

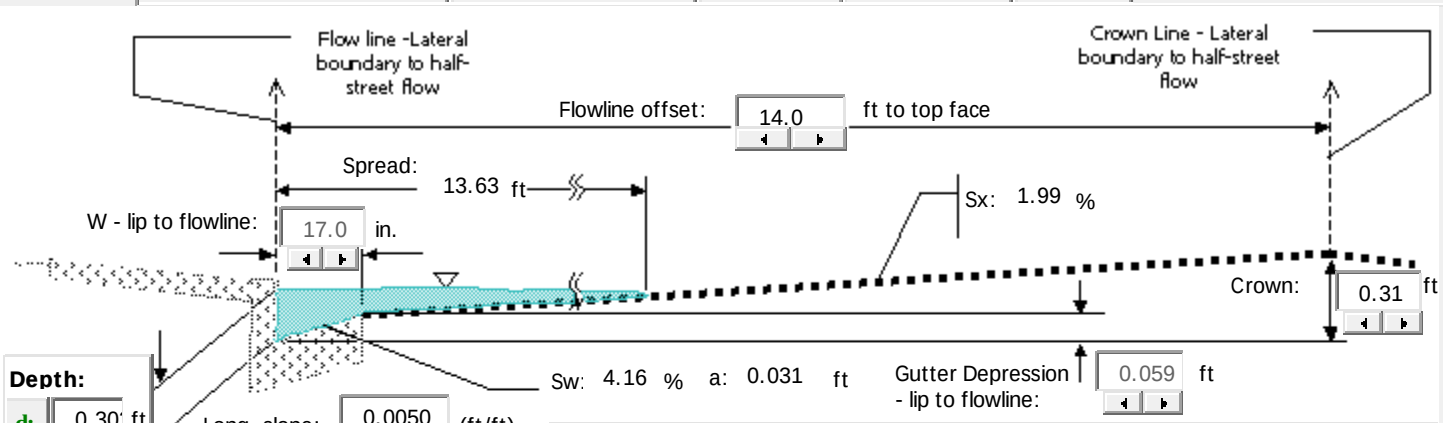
**Modified Manning's Equation Solver**

Version: 3.0<>7/19/2018 9:28:30 AM



Print | Save | Quit

Parameters | Composite Triangular Sections | Head - Discharge Table | Assumptions | Inlet Geometry | Disclaimer




**Street Parameters:**

| | | |
|---|---|---|
| Q: | 3.93 | cfs |
| K: | 55.6 | |
| Vel: | 2.10 | ft/s |
| Eo: | 27.3 | % |
| W/T: | 0.1039 | |

**Standard Manning's:**

| | | |
|---|---|---|
| Q: | 3.23 | cfs |
| K: | 45.7 | |
| Vel: | 1.72 | ft/s |
| Rh: | 0.13 | ft |
| Area: | 1.87 | sf |

**Local Parameters:**

Local inlet flow line depression: 2.0 in.

**Curb Opening Parameters:**

C-O Apron wider than gutter: 0 in.

S'w 13.9 % Se: 5.80 %

Length of curb opening inlet: 12.0 ft

Lt: 14.36 ft

80 % Clear Efficiency 86.3 %

Curb opening flowby: 0.54 cfs

P-1-7/8-4

Print Chart 7

**Grate Parameters:**

Apron wider than grate: 2 in.

Length: 48 in. Width: 22 in.

% Factor 50 % Factor 50

Splash-over Vel: 7.41 ft/s Vel over grate: 1.98 ft/s

Eo: 99.54 %

Rs: 16.00 % Rf: 100.00 %

Side flow captured: 0.04 cfs Frontal captured: 0.27 cfs

Total combined CB flowby: 0.23 cfs

Street Flow - 12-Inch Water Main
Avenue 264,
West of Mooney Blvd

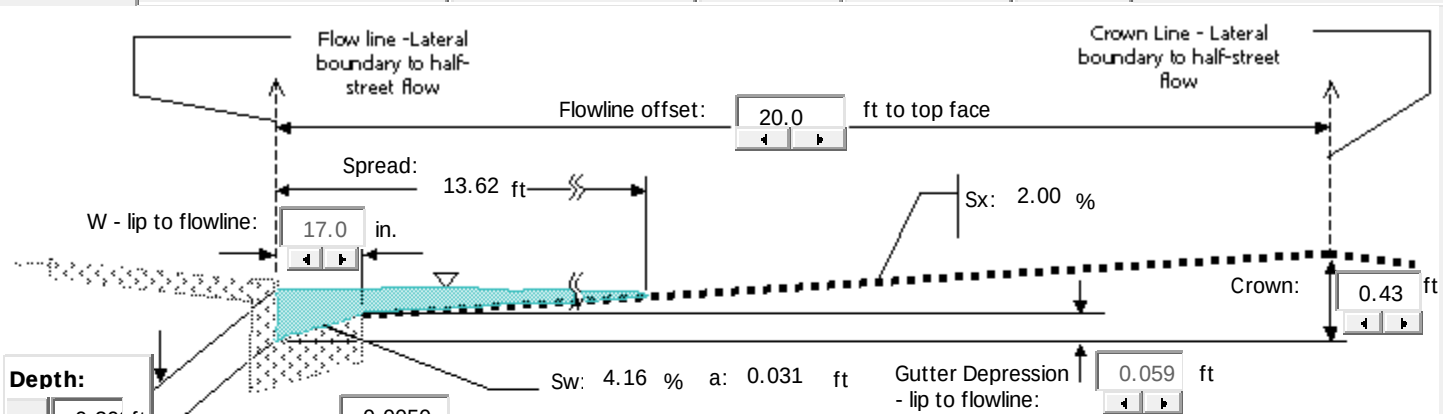
**Modified Manning's Equation Solver**

Version: 3.0<>7/19/2018 9:28:30 AM



Print | Save | Quit

Parameters | Composite Triangular Sections | Head - Discharge Table | Assumptions | Inlet Geometry | Disclaimer




**Street Parameters:**

| | | |
|---|---|---|
| Q: | 3.93 | cfs |
| K: | 55.6 | |
| Vel: | 2.10 | ft/s |
| Eo: | 27.3 | % |
| W/T: | 0.1040 | |

**Standard Manning's:**

| | | |
|---|---|---|
| Q: | 3.23 | cfs |
| K: | 45.7 | |
| Vel: | 1.72 | ft/s |
| Rh: | 0.13 | ft |
| Area: | 1.87 | sf |

**Local Parameters:**

Local inlet flow line depression: 2.0 in.

**Curb Opening Parameters:**

C-O Apron wider than gutter: 0 in.

S'w 13.9 % Se: 5.80 %

Length of curb opening inlet: 12.0 ft

Lt: 14.36 ft

80 % Clear Efficiency 86.3 %

Curb opening flowby: 0.54 cfs

P-1-7/8-4

Print Chart 7

**Grate Parameters:**

Apron wider than grate: 2 in.

Length: 48 in. Width: 22 in.

% Factor 50 % Factor 50

Splash-over Vel: 7.41 ft/s Vel over grate: 1.98 ft/s

Eo: 99.55 %

Rs: 16.01 % Rf: 100.00 %

Side flow captured: 0.04 cfs Frontal captured: 0.27 cfs

Total combined CB flowby: 0.23 cfs

Street Flow - 12-Inch Water Main
Eastern Portion of Mooney Blvd,
North of Avenue 264

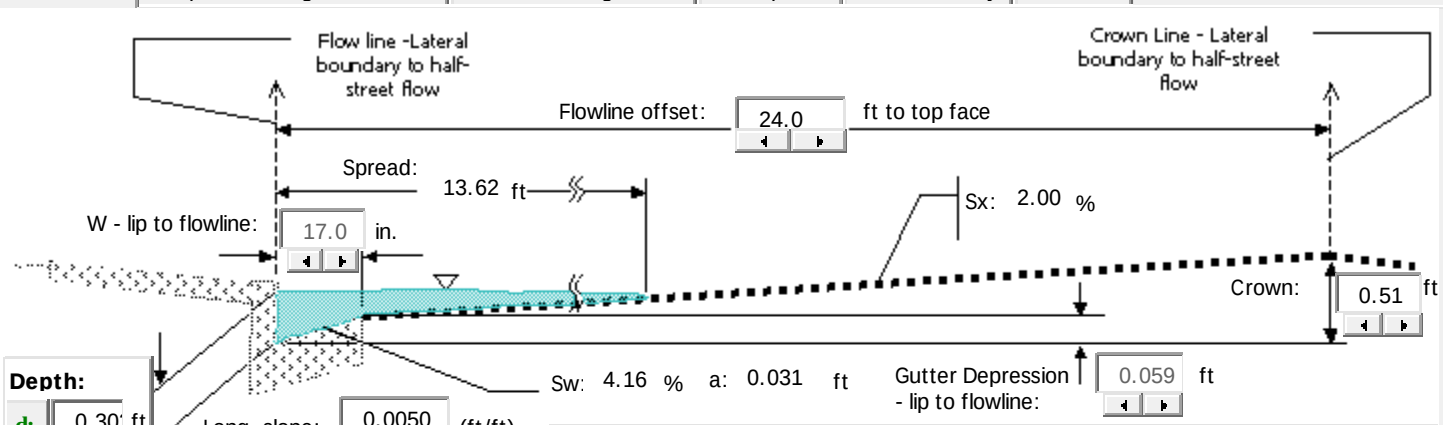
**Modified Manning's Equation Solver**

Version: 3.0<>7/19/2018 9:28:30 AM



Print | Save | Quit

Parameters | Composite Triangular Sections | Head - Discharge Table | Assumptions | Inlet Geometry | Disclaimer




**Street Parameters:**

| | | |
|---|---|---|
| Q: | 3.93 | cfs |
| K: | 55.6 | |
| Vel: | 2.10 | ft/s |
| Eo: | 27.3 | % |
| W/T: | 0.1040 | |

**Standard Manning's:**

| | | |
|---|---|---|
| Q: | 3.23 | cfs |
| K: | 45.7 | |
| Vel: | 1.72 | ft/s |
| Rh: | 0.13 | ft |
| Area: | 1.87 | sf |

**Local Parameters:**

Local inlet flow line depression: 2.0 in.

**Curb Opening Parameters:**

C-O Apron wider than gutter: 0 in.

S'w 13.9 % Se: 5.80 %

Length of curb opening inlet: 12.0 ft

Lt: 14.35 ft

80 % Clear Efficiency 86.3 %

Curb opening flowby: 0.54 cfs

P-1-7/8-4

Print Chart 7

**Grate Parameters:**

Apron wider than grate: 2 in.

Length: 48 in. Width: 22 in.

% Factor 50 % Factor 50

Splash-over Vel: 7.41 ft/s Vel over grate: 1.98 ft/s

Eo: 99.55 %

Rs: 16.01 % Rf: 100.00 %

Side flow captured: 0.04 cfs Frontal captured: 0.27 cfs

Total combined CB flowby: 0.23 cfs

Street Flow - 12-Inch Water Main
Western Portion of Mooney Blvd,
North of Avenue 264

# Appendix B. Agency Correspondence

Outlook

## RE: Pipeline Information Request for YMCA Liberty School Expansion, in unincorporated Tulare County, CA

**From** Pham, Deanna D <DPham@socalgas.com>
**Date** Wed 4/9/2025 10:01 AM
**To** Steve Bush <sbush@placeworks.com>
**Cc** Coria, Christopher <CCoria@socalgas.com>

1 attachment (436 KB)
PIR YMCA.pdf;

You don't often get email from dpham@socalgas.com. Learn why this is important

Hello Steve,
Apologies for the error. I have attached the edited PIR letter. Thank you.

**Deanna Pham**
Distribution Engineering Intern
Chatsworth HQ

**From:** Steve Bush <sbush@placeworks.com>
**Sent:** Wednesday, April 9, 2025 9:48 AM
**To:** Pham, Deanna D <DPham@socalgas.com>
**Subject:** [EXTERNAL] Re: Pipeline Information Request for YMCA Liberty School Expansion, in unincorporated Tulare County, CA

Hi Deanna,
Thank you for the response. Can I ask a favor, that you re-send the letter and remove the following phrase from the last paragraph:

"... Located at Saugus Union School District"...

The school site is being evaluated by Tulare County Office of Education. Probably just a carry over from a previous PIR letter.

Thank you again,

**STEVE BUSH, PE**
**Senior Engineer II**

PLACEWORKS
510.848.3815 x3316
*Celebrating 50 years of creating great places!*

**From:** Pham, Deanna D <DPham@socalgas.com>
**Sent:** Wednesday, April 9, 2025 9:19 AM
**To:** Coria, Christopher <CCoria@socalgas.com>; Salazar Lopez, Adrian <ASalaza2@socalgas.com>; Guzman, Claire L. <CLGuzman@socalgas.com>; Steve Bush <sbush@placeworks.com>
**Subject:** RE: Pipeline Information Request for YMCA Liberty School Expansion, in unincorporated Tulare County, CA

You don't often get email from dpham@socalgas.com. Learn why this is important [aka.ms]

Hello,

Please find the attached document containing pressure information for the HP pipeline located near 11535 Avenue 264, Visalia, CA 93277. Feel free to reach out if you have any additional questions.

**Deanna Pham**

Distribution Engineering Intern

Chatsworth HQ

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**From:** Coria, Christopher <CCoria@socalgas.com>
**Sent:** Thursday, April 3, 2025 10:56 AM
**To:** Salazar Lopez, Adrian <ASalaza2@socalgas.com>; Pham, Deanna D <DPham@socalgas.com>
**Subject:** FW: Pipeline Information Request for YMCA Liberty School Expansion, in unincorporated Tulare County, CA

Adrian,

Can you show Deanna how to complete this letter response for Title V? And add to delta?

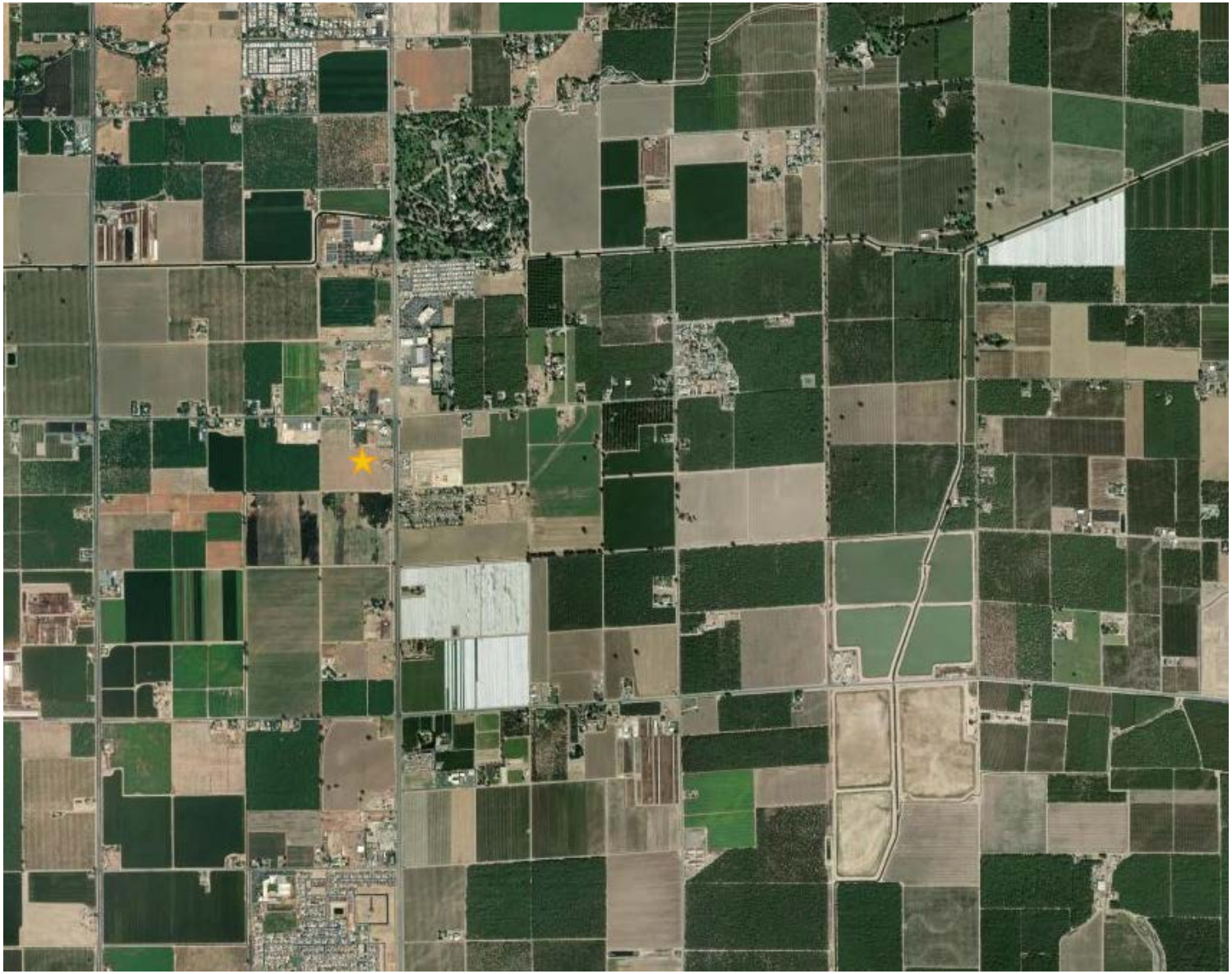
11535 Avenue 264, Visalia, CA 93277

**Christopher Coria, P.E.**

Distribution Engineering Team Lead

Pipeline and Hazardous Materials Safety Administration

# NATIONAL PIPELINE MAPPING SYSTEM



## Legend

- Gas Transmission Pipelines
- Hazardous Liquid Pipelines

500 m
1000 ft

Pipelines depicted on this map represent gas transmission and hazardous liquid lines only. Gas gathering and gas distribution systems are not represented.

This map should never be used as a substitute for contacting a one-call center prior to excavation activities. Please call 811 before any digging occurs.

Questions regarding this map or its contents can be directed to npms@dot.gov.

Projection: Geographic

Datum: NAD83

Map produced by the Public Viewer application at www.npms.phmsa.dot.gov

World Imagery map service data is attributed to Esri, Maxar, Earthstar Geographics, and the GIS User Community.

Date Printed: Feb 14, 2025

811 Know what's below. Call before you dig