P.O. Box 1839
Vista, CA 92085-1839
(760) 639-3600
Fax (760) 639-3603

Donan Environmental Services, Inc.

SITE ASSESSMENT WORK PLAN

Soil and Groundwater Investigation

for

UNAUTHORIZED RELEASE CASE NUMBER: H03089-001

•

Golden State Gasoline
225 West Washington Ave.
Escondido, California

Prepared By:
DONAN ENVIRONMENTAL SERVICES, INC.

April 7, 2014

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SIGNATORY PAGE

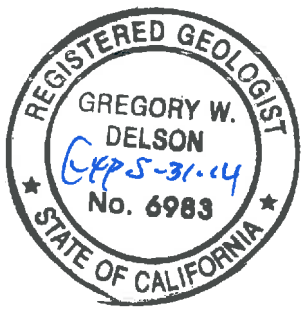
Designation:
DES Project Number 09E3857
Site Assessment Work Plan, Soil and Groundwater Investigation
UR# H03089-001

Report Prepared For:
Golden State Gasoline, Inc.
225 West Washington Ave.
Escondido, CA 92025

Prepared and Submitted By:
DONAN ENVIRONMENTAL SERVICES, INC.

Greg Delson, PG#6983
Project Manager

Anderson M. Donan
General Manager



cc: Mr. Craig Burnett, County of San Diego DEH

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P.O. Box 1839
Vista, CA 92085-1839
(760) 639-3600
Fax (760) 639-3603

Donan Environmental Services, Inc.

April 7, 2014
Project Number: 09E3857

Report Delivered To:
Mr. Samuel Boyd
Golden State Gasoline, Inc.
225 West Washington Ave.
Escondido, CA 92025

RE: SITE ASSESSMENT WORK PLAN
Soil and Groundwater Investigation
Unauthorized Release Case Number: H03089-001
Golden State Gasoline at 225 West Washington Ave., Escondido, California (Site)

Donan Environmental Services, Inc. (DES) has prepared this Soil and Groundwater Investigation Work Plan for the above-referenced Site in response to the enclosed County of San Diego Department of Environmental Health (DEH) Letter (February 21, 2014). The DES Site Assessment Report (SAR) (January 8, 2014) and recent groundwater monitoring have found that elevated benzene and methyl-tertiary-butyl ether (MTBE) concentrations in soil and groundwater are not assessed. This Work Plan provides an approach to investigate this concern.

1.0 INTRODUCTION

1.1 Site Setting

The Site is located in a commercially-developed neighborhood of Escondido, east of Interstate 15, close to the intersection of Highway 78 and Interstate 15. Refer to the enclosed Site Location Map (Figure 1).

The Site is a commercial establishment, in use as a filling station. The Site improvements include one building housing a store, a cluster of three gasoline underground storage tanks (USTs), three fuel pump islands, a paved parking lot, new groundwater monitoring wells DW15, DW16, DW17, DW18, DW19, and DW20, and the pre-existing monitoring wells, MW1, MW2, MW3, MW4, MW5, MW6, DW7, DW8, DW9, DW10, DW11, DW12, DW13, and DW14. Refer to the enclosed Site Plan (Figure 2).

1.2 Local Groundwater Flow

The depth to groundwater at the Site is approximately 11 feet below ground surface (bgs). The enclosed Figure 3 shows that the groundwater flow direction is predominantly to the west/southwest. Previous reports have also indicated that groundwater has a southward flow component. The storm drain inlet, at the northeast corner

of the adjacent property to the east, appears to create a groundwater mound that further enhances the local flow regime (refer to Figure 3).

The City of Escondido storm drain east of the E&L Supply building provides a source of water recharge that alters the natural groundwater flow regime and likely causes the birfurcated groundwater flow directions and contamination migration at wells DW11 and DW17 (Figure 3). Figure 3 shows a conceptual depiction of the storm drain providing groundwater recharge during the wet season and causing associated water table mounding in the vicinity of the storm drain. An example wet season finding is that in January 2011, the depth to water in MW6 was a shallow 9.15 feet (Figure 3). Well MW6 is downgradient of the storm drain and previous DES Reports have indicated that gray water observed in MW6 may have originated from the storm drain system. In contrast to the wet season findings, Figure 3 also shows that during the dry season, when less water is in the storm drain, water table mounding is not shown by the data. An example dry season finding is that in December 2013, after the dry season, a water table low of 13.28 feet bgs was reported in DW12 (Figure 3). There is a concern that southward components of groundwater flow caused by recharge from the storm drain system drive contamination migration onto the Classical Academy High School south of the Site.

1.3 General Chronology

The activities leading up to this Report are as follows:

September 28, 2010	On September 28, 2010, DES submitted a SAR that presented the results of soil and groundwater investigation conducted in August 2010. The investigation found groundwater contamination in offsite wells. For a depiction of the offsite contamination migration concern, refer to enclosed Figure 4. The DES SAR (September 28, 2011) recommended that additional wells be installed to assess the lateral extent of groundwater impacts.
November 2010	In a DEH email (November 4, 2010), the DEH directed that a historical records review be conducted to evaluate potential offsite sources of petroleum hydrocarbon impacts.
August 2011	The results of the offsite records review and an offsite conceptual impact model were presented in DES Report (September 22, 2011). Three potential sources of offsite impacts were identified in the DES Report (September 22, 2011) (refer to enclosed DES Report (January 8, 2014) - Figure 4). Based on the findings, the DES Report (September 22, 2011) recommended installation of wells east of the Site to evaluate potential co-mingling of offsite upgradient releases with the Site release. On September 22, 2011 DES submitted a work plan to investigate the downgradient impacts from the site and the impacts from the identified offsite sources.
Aug.-Sept. 2013	On August 23 to September 3, 2013, DES conducted a high-vacuum dual-phase extraction (HVDPE) pilot test at the Site in accordance with the DES Interim Remedial Action Plan (September 22, 2011). The pilot test consisted of a 5-day test that included HVDPE in wells MW1, MW2, MW3, MW4, and MW5. The results of the pilot test were presented in a DES Report (January 9, 2014). The DES Report

(January 9, 2014) indicated that after conducting HVDPE in wells MW2 and MW5, measurable thicknesses of free product were measured for the first time at the Site in Wells MW2 and MW5. Upon completing the recovery monitoring on September 3, 2013, free product thicknesses of 0.48 feet in MW5 and 0.33 feet in MW2 were measured.

The appearance of product in MW2 and MW5 during the pilot test confirmed the conceptual concern in the DES SAR (September 28, 2010) that free product impacts are submerged below the water table at the Site. Further details on the results of the HVDPE pilot test and the appearance of product during the pilot test are discussed in DES Report (January 9, 2014).

October 2013

DES drilled 6 boreholes and collected soil samples, installed, and constructed groundwater monitoring wells (DW15, DW16, DW17, DW18, DW19, and DW20). DES had the soil samples analytically tested by a State-certified laboratory. Well development and groundwater sampling then followed. The results of the October 2013 soil and groundwater investigation and September 2013 groundwater monitoring were presented in the DES SAR (January 8, 2014). The DES SAR (January 8, 2014) found that the soil and groundwater data indicated a 3rd-Party offsite source of contamination to the east the Site. To investigate this concern, DES proposed soil and groundwater investigation at the former Nelson Trust Case site. Enclosed Figure 4 shows the soil assessment data and enclosed Figures 5, 6, 7, and 8 show updated groundwater data from the Fourth Quarter 2013 monitoring event.

Enclosed DES SAR (January 8, 2014) - Figure 16 shows the proposed well locations for DW27 and DW26 which were intended to investigate the offsite source of contamination that co-mingles with impacts from the GSG Site on the E&L Supply property. The DES SAR (January 8, 2014) also recommended groundwater wells to investigate soil and groundwater impacts westward (downgradient) of the GSG Site.

December 2013

DES conducted the Fourth Quarter 2013 Groundwater monitoring event. The results of the groundwater monitoring were presented in the DES Report (April 3, 2014). The DES Report (April 3, 2014) confirmed the findings of the DES SAR (January 8, 2014) and provided further evaluation of how the City of Escondido Storm drain system likely causes a southward component of groundwater flow and contamination migration at the E&L Supply property (refer to Figure 3 and Section 1.2 of this Work Plan).

February 2014

The DEH reviewed the DES SAR (January 8, 2014) and provided comments in the enclosed DEH Letter (February 21, 2014). The DEH Letter (February 21, 2014) indicated installation of proposed groundwater monitoring wells DW26 and DW27 was not required. The directive to not install DW26 and DW27 suggests that the impact of the upgradient offsite sources is sufficiently assessed in terms of the investigation of GSG Site UR# H03089-001. The DEH Letter (February 21, 2014)

provides detailed directives on the investigation of the downgradient portions of the GSG Site release. This Work Plan provides guidance to install and sample the wells approved in the DEH Letter (February 21, 2014).

The activities above have resulted in a partial assessment of the lateral and vertical extent of impacts to soil and groundwater. Refer to the enclosed Figures 5, 6, 7, and 8 for the hydrocarbon impacts to groundwater. The DEH Letter (February 21, 2014) directed further investigation to assess the impacts. This Work Plan was prepared to guide the investigation activities for the proposed wells shown on Figure 9.

2.0 OBJECTIVES

The objectives of this Work Plan are as follows:

1) Assess the impact of unauthorized release H03089-001 on soil and groundwater.

3.0 SCOPE OF SERVICES

The investigation scope of services will be performed in general accordance with the latest County of San Diego DEH Site Assessment and Mitigation Guidelines. This Work Plan provides an approach to investigate the soil and groundwater impacts in accordance with the directives of the DEH Letter (February 21, 2014).

On the basis of discussed site information and the above-outlined objective, the investigation work scope is presented as follows (refer to Figure 9):

1) Assess the lateral extent of groundwater and soil impacts downgradient of MW3 and DW7 by advancing and sampling well DW24 (Figure 9)(proposed as DW21 in the enclosed DES Report (January 8, 2014) - Figure 16).

2) Assess the extent of groundwater and soil impacts to the southwest, along the indicated groundwater flow direction away from the Site by advancing and sampling well DW22 (Figure 9).

3) Assess the lateral extent of groundwater and soil impacts south of DW11 and DW17 by advancing and sampling Well DW23. Well DW23 is needed to determine if impacts in DW11 and DW17 present a contamination migration risk to the Classical Academy High School property (Figure 9).

4) Assess the southward extent of soil and groundwater impacts in DW19 by advancing and sampling well DW21 (proposed as DW25 in the enclosed DES Report (January 8, 2014) - Figure 16). Well DW25 was not excluded in the DEH Letter (February 21, 2014), therefore, the location is included in this Work Plan and designated as DW21.

The proposed scope of services, which is currently anticipated to meet the project objective, is presented in the description of the following tasks:

3.1 Project Plans and Permits

The scope of services anticipated for this project will require obtaining various approvals for the following plans and permits prior to mobilization.

3.1.1 Work Plan Approval

This Work Plan, including the project objective and scope of services, is to be submitted for approval by the DEH.

3.1.2 Drilling Permit

Upon DEH approval of this Work Plan, a soil boring permit must be obtained from the DEH for drilling and installation of the groundwater wells.

3.1.3 Property Owner Consent

The four proposed well locations are on offsite locations. As a part of the DEH soil boring permit process, DES will work with the affected property owners in an attempt to obtain the needed signatures on the DEH Property Owner Consent (POC) form. If the property owners do not cooperate, the matter will be referred to the DEH.

3.1.4 Utility Clearance

In order to minimize the potential site hazards during the proposed soil boring, and as required by law, Underground Service Alert will be notified to identify public utilities encroaching onto the Site. The mark-out of potential utilities is intended to reduce the risk of encountering or damaging an underground structure during the proposed subsurface activities. Private utility service connections are also known to exist in the work area, and must be further evaluated prior to drilling. A private utility locator service will be employed to detail the utility locations on the Site's interior property area. In addition, each prospective boring location will be "air-knifed" with a vacuum drilling application down to 5 feet below ground surface (bgs) to verify utility clearance. This precaution is applicable, because of various storm drains and underground sewer pipes reported in the area. Furthermore, at locations DW22 and DW23, the borings will be advanced to 10 feet bgs by air knife in order to ensure that the nearby storm drain is not contacted (Figure 9). City of Escondido records indicate that the storm drains extend to 7 to 8 feet bgs.

3.2 Soil Borings and Monitoring Well Installation

DES proposes to drill four soil borings and convert them to monitoring wells (refer to Figure 9 of this Work Plan). Well DW9 will also be re-drilled and re-built in the same soil boring. A hollow stem auger (HSA) drill rig will be employed to install the borings. The soil borings will be drilled to a depth of approximately 20 feet bgs and constructed as 2-inch monitoring wells, similar to the existing site wells. Based on the monitored groundwater levels in the existing wells, the static groundwater is approximately 11 feet bgs. The proposed monitoring wells and re-built DW9 will be constructed with 15 feet of 0.020-inch slotted poly-vinyl chloride (PVC) casing and 5 feet of blank PVC casing. The well casing diameter will be 2 inches. The gravel pack will consist of Monterey Sand#3 and placed in the annular space from the termination depth to one foot above the slotted casing. Then one foot of bentonite chips will be placed on top of the sand and hydrated. Then 3 feet of concrete with a traffic box will enclose the upper part of the well. Refer to the enclosed Borehole/Well Log for DW7 for further well construction detail.

Following installation of the filter pack in each new well, the new well will be developed using a surge block. Upon verifying no further settling of the filter pack, the bentonite and concrete seals and surface traffic box will be installed. Upon completing well installation, the well will be developed by using a bailer, and/or submersible pump. Development will be completed until less than 5% solids are exhibited in the purge water as indicted by use of an Imhoff cone or upon stabilization of field screening parameters pH, temperature, and electrical conductivity. Water generated during development will be containerized and managed on-site for future disposal. The elevation of each well casing top, including re-built DW9, will be surveyed for proper assessment of groundwater elevation, gradient, and flow direction.

Gauging and sampling will be performed no earlier than 72 hours after well development to allow potential phase-separated hydrocarbons to enter the new wells. The new wells will be gauged, purged, and sampled. The new wells, and the existing wells, will be sampled on a quarterly basis to monitor the groundwater and contaminant character through seasonal changes.

3.3 Sample Collection and Analytical Methods

3.3.1 Soil Samples

Soil samples will be collected at 10, 15, and 20 feet bgs in each soil boring with a modified California split-spoon drive sampler. The samples will be labeled with a unique identification number and the location will be recorded on the boring log. Three soil samples per borehole are assumed.

Additional soil samples may be collected based on site data, including field indications of staining, odors and/ or geologic conditions, vapor screening results, laboratory results, and professional judgment. Soil samples will be collected in metal liners, capped, placed in an ice-chilled cooler, and delivered to the state-certified laboratory under chain-of-custody procedures. Soil sample handling will be with single-use gloves. Field organic vapor screening equipment will be used for headspace analysis. The soil samples will then be submitted to a State-certified laboratory for analytical testing. Proper chain-of-custody procedures will be utilized to document sample collection, handling, and transport.

3.3.2 Groundwater Samples

Groundwater samples will be collected from the newly installed wells and the existing well network in accordance with well purging and sample collection methods in the most recent version of the SAM Manual. Well purging and sampling will be documented on DEH Well Purging/Sampling Logs. Groundwater samples will be collected with a single-use disposable bailer. The groundwater samples will be collected into appropriate containers, such as 40ml VOA vials, and a unique sample identification number will be used for each sample. The VOA sample will be preserved by adding hydrochloric acid (HCL) until a minimum pH of 2 is reached. The samples will be stored in an ice-chilled cooler until delivery to the State-certified laboratory for testing. Proper chain-of-custody procedures will be utilized to document sample collection, handling, and transport.

3.3.3 Sample Analytical Methods and Reporting

Up to 12 soil samples and 24 groundwater samples (4 from the new wells and 20 from the existing wells approved for monitoring) will be submitted for analytical testing. All soil and groundwater samples will be analyzed for total petroleum hydrocarbons - gasoline (using a gasoline standard (TPHg) by using EPA Method 8015-modified. The groundwater samples will also be analyzed for benzene, toluene, ethylbenzene, and xylenes

(BTEX), MTBE, ethyl-tertiary-butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary-amyl-methyl ether (TAME), and tertiary-butyl alcohol (TBA), by using EPA Method 8260B. Diesel-range organics (DRO) will not be analyzed as recommended in DES Report (January 8, 2014) and because the Site has no record of storing or selling diesel. Furthermore, the DES Reports (January 8, 2014 and April 3, 2014) concluded that the previously reported DRO and TPHd at the Site were likely degraded gasoline and not diesel.

One soil sample that exhibits the highest TPHg concentration in each soil boring will also be analyzed for BTEX, MTBE, and oxygenates by EPA Method 8260B. The analytical report, including quality assurance/quality control data, will be provided by the State-certified laboratory upon completion of the sample testing.

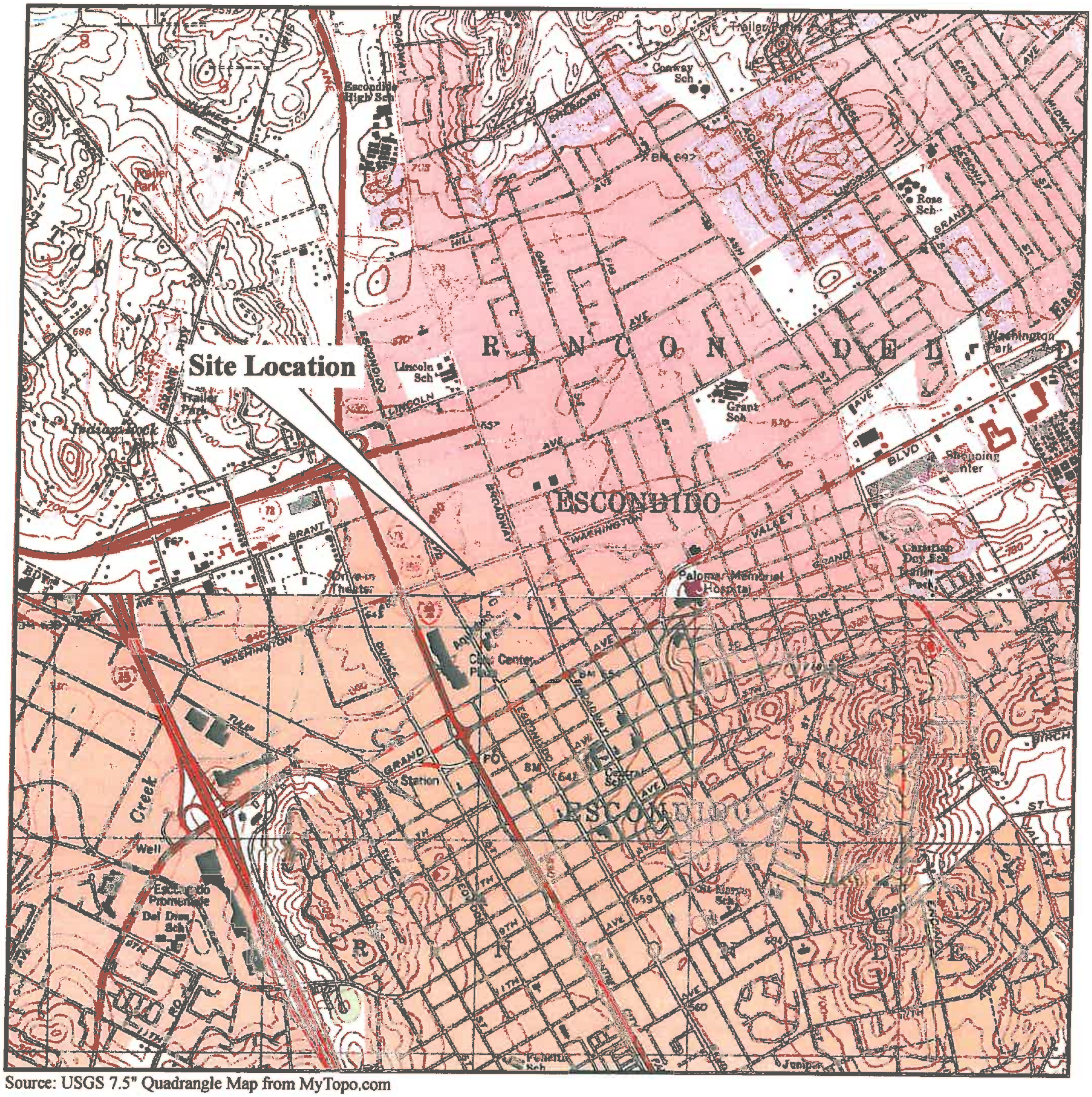
3.4 Management of Wastes

Non-regulated and uncontaminated waste products generated during environmental site activities will be handled and disposed of as municipal waste. Soil and rock cuttings, equipment wash water, and purged groundwater must be handled and disposed of appropriately. It is anticipated that these waste products will be containerized in 55-gallon DOT drums as they are generated. Each drum will be labeled with its contents, date of generation, and emergency contact information. The drummed wastes will be stored in a secured area until transport to an appropriate treatment/disposal facility. California-regulated wastes will be removed via a licensed recycler, and the DEH will be provided with the appropriate documentation as the disposal actions are completed.

3.5 Site Assessment Report

At the completion of field and laboratory investigations, a SAR will be prepared in general accordance with the DEH guidelines, executed with the proper professional signatures, and submitted to the DEH. The SAR will summarize the methods used during the soil and groundwater investigation. Sampling locations, laboratory findings, and the indicated extent of the petroleum hydrocarbon impact will be presented in the appropriate figures, cross-sections, tables, and other support documents.

FIGURES



Source: USGS 7.5" Quadrangle Map from MyTopo.com

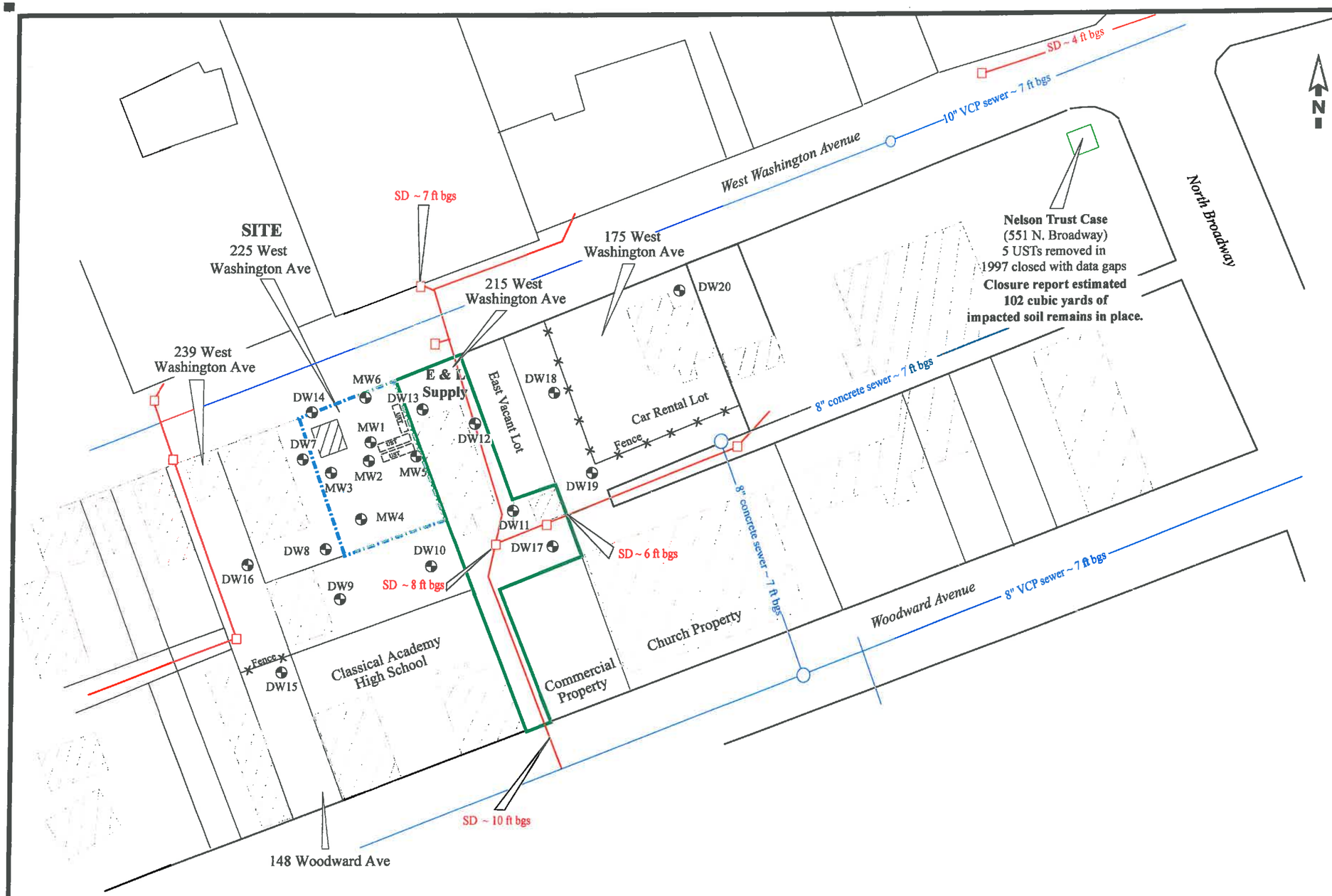
N

0	2,325	4,650

Approximate Scale in feet

Disclaimer: This figure is an interpretation based on available data. Actual site conditions may differ. All locations and dimensions are approximate.

Donan Environmental Services, Inc.	**Site Location** **Golden State Gasoline** 225 West Washington Ave. Escondido, California 92025	**Project No.** 09E3857 **Figure 1**



KEY:

- Approximate Site Boundary
- Approximate Parcel Boundary
- Edge of street
- Approximate property boundary E&L Supply
- Building outline
- DW17 — Groundwater Monitoring Well location DW wells installed by DES, MW wells installed by others
- VCP — Vitreous clay pipe
- Storm drains (SD) (City of Escondido Storm Drain Atlas)
- Sanitary Sewer Lines (City of Escondido Sewer Atlas)
- Sanitary sewer manhole
- SD ~ 6 ft bgs — Storm drain inlet (bottom of storm drain indicated)

0 100 200

Approximate Scale in feet

Disclaimer: This figure is an interpretation based on available data. Actual site conditions may differ. All locations and dimensions are approximate.

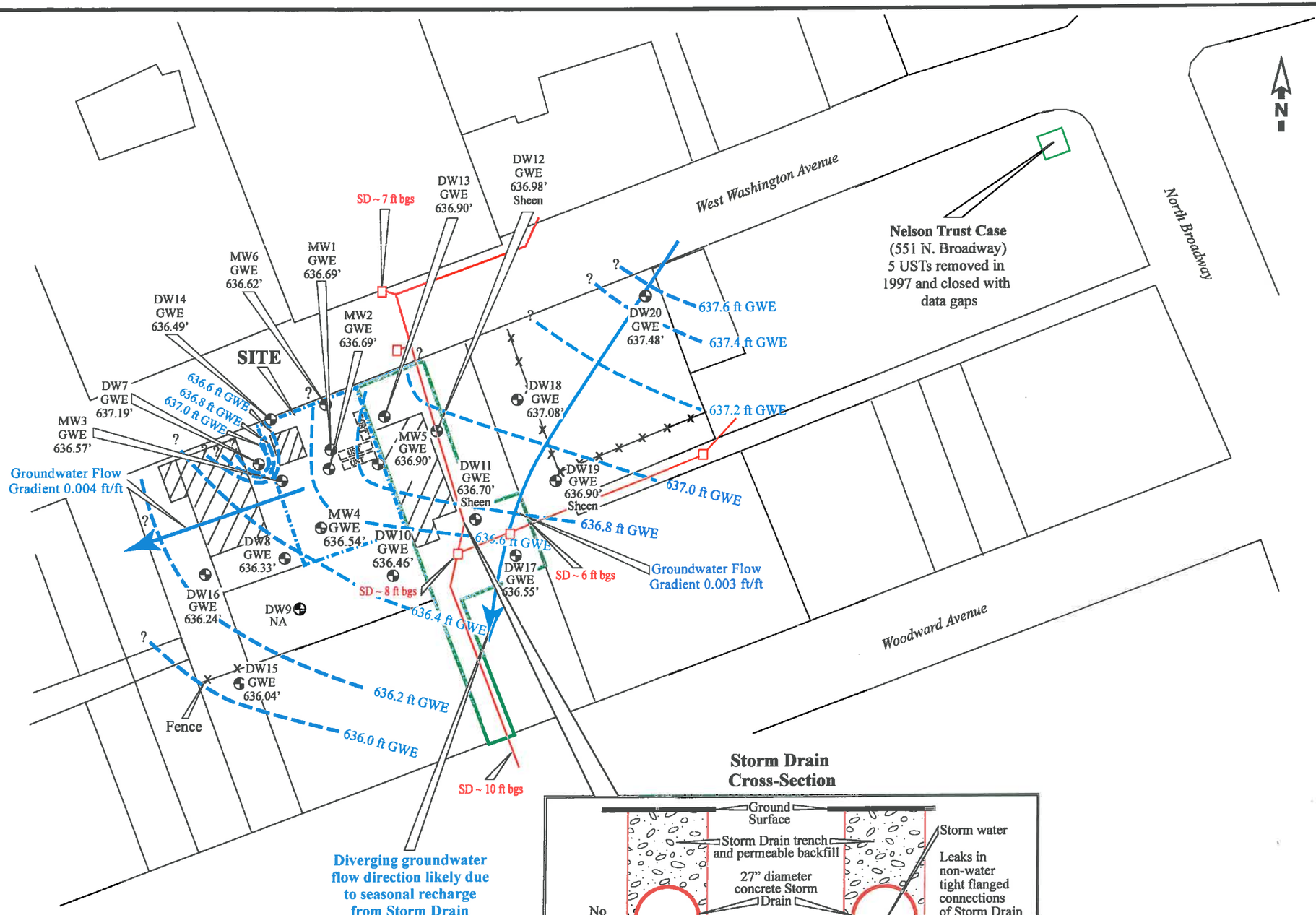
Donan Environmental Services, Inc.

Site Plan

Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No.
09E3857

Figure 2



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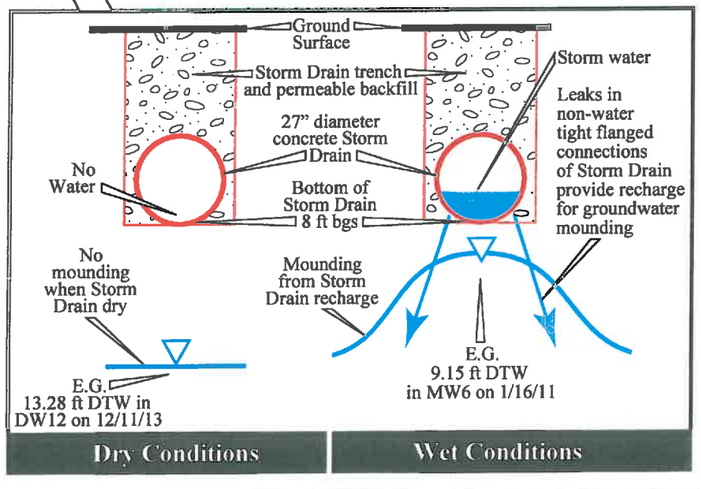
- Building outline
- DW17 — Groundwater Monitoring Well location DW wells installed by DES, MW wells installed by others
- GWE — Groundwater elevation in feet (12/11-12/2013)
- NA — Data not available because DW9 not sampled due to plant root obstructions in the well.
- ND — Not detected at concentration above the laboratory detection limit.
- Groundwater elevation contour in foot per foot (foot/foot) surveyed geodetic data
- Primary Groundwater Flow (December 2013)
- Storm drains (SD) (City of Escondido Storm Drain Atlas)
- SD~8ft bgs — Storm drain inlet (Bottom of storm drain indicated)

REFERENCE:
DES Report (April 3, 2014) - Figure 3

0 100 200
Approximate Scale in feet

Disclaimer: This figure is an interpretation based on available data. Actual site conditions may differ. All locations and dimensions are approximate.

Storm Drain Cross-Section



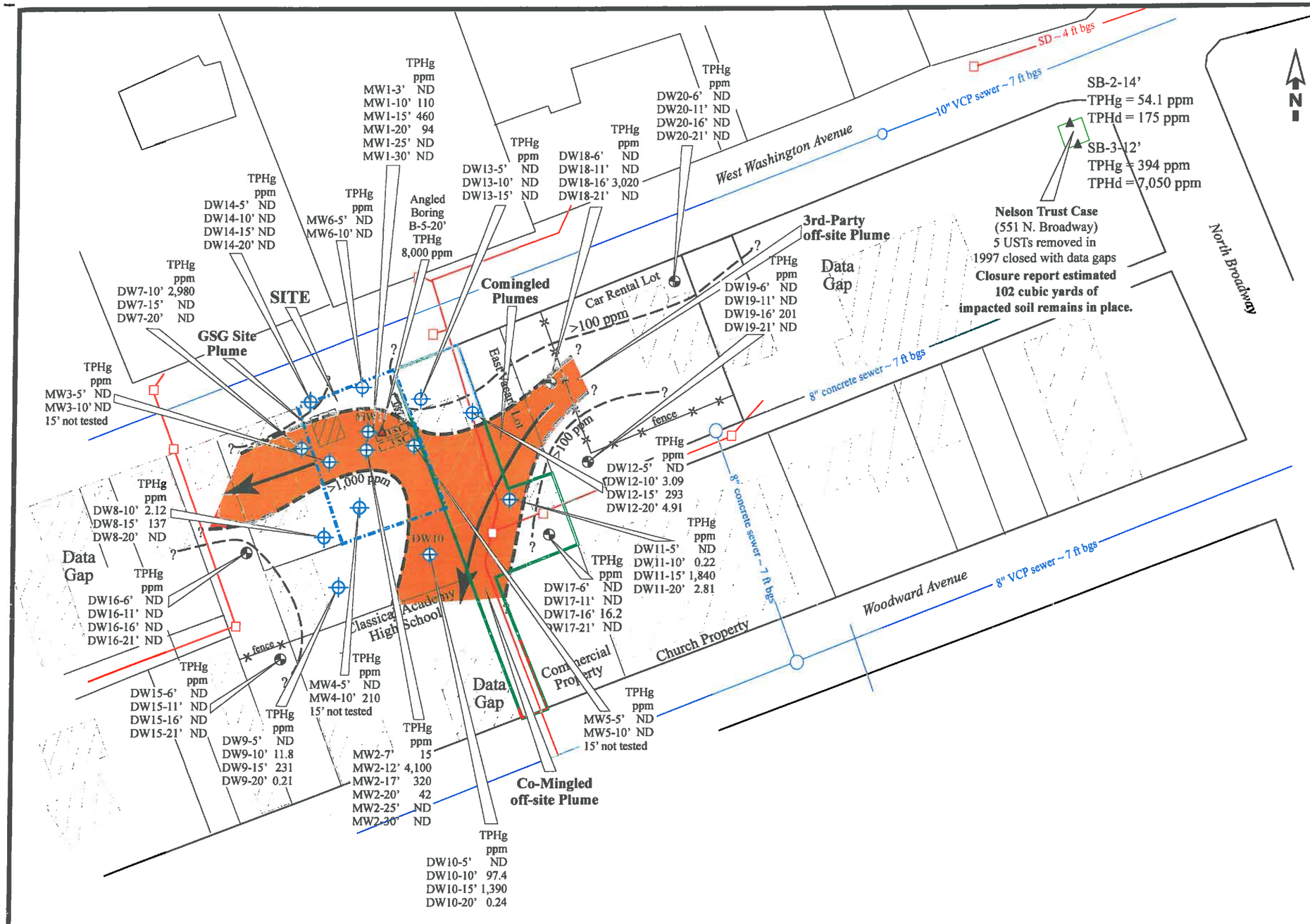
Donan Environmental Services, Inc.

Groundwater Plan
Fourth Quarter, 2013

Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No.
09E3857

Figure 3



KEY:

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- Approximate Parcel Boundary
- Edge of street
- Approximate property boundary E&L Supply
- Building outline
- MW5 — Groundwater Monitoring Well location DW wells installed by DES, MW wells installed by others
- DW17 — Groundwater monitoring well DES, 10/2013
- Approximate offsite soil sampling location
- Angled soil boring sampled at 20 feet down drill stem equivalent to 17.3 feet bgs (Herschey 1998)
- TPHg — Total petroleum hydrocarbons-gasoline by EPA Method 8015 modified in parts per million (ppm) from DES Report (January 8, 2014) - Figure 6
- ND — Not detected at concentration above the laboratory detection limit.
- Contamination migration pathway
- TPHg iso-concentration contour in ppm (Based on 15-foot bgs soil data or, if available, higher concentration shallower data. Some borings have soil data for depths up to 10 feet bgs only, or from a 20-foot bgs sample only. TPHg results from 10-foot and 20-foot depths under-represent the magnitude of TPHg impact at the sampling location, because, those samples miss the smear zone interval evidenced by elevated impacts shown in 12-foot bgs and 15-foot bgs soil sample results.)

>1,000 ppm High
>100 ppm Low

REFERENCE:
DES Report (April 3, 2014) - Figure 6

0 100 200
Approximate Scale in feet

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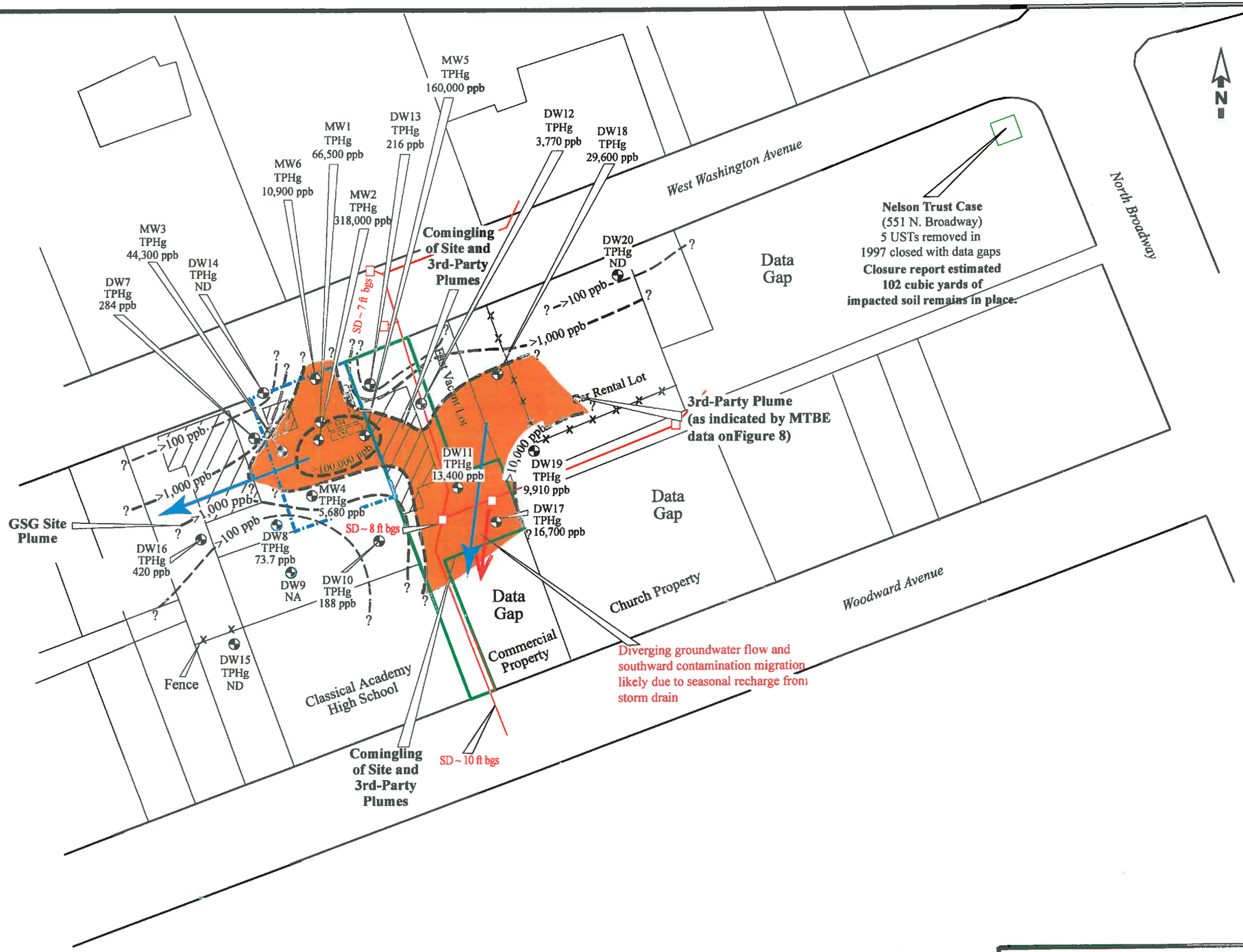
Donan Environmental Services, Inc.

Gasoline-Impacted Soil Plan

Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No.
09E3857

Figure 4



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Donan Environmental Services, Inc.

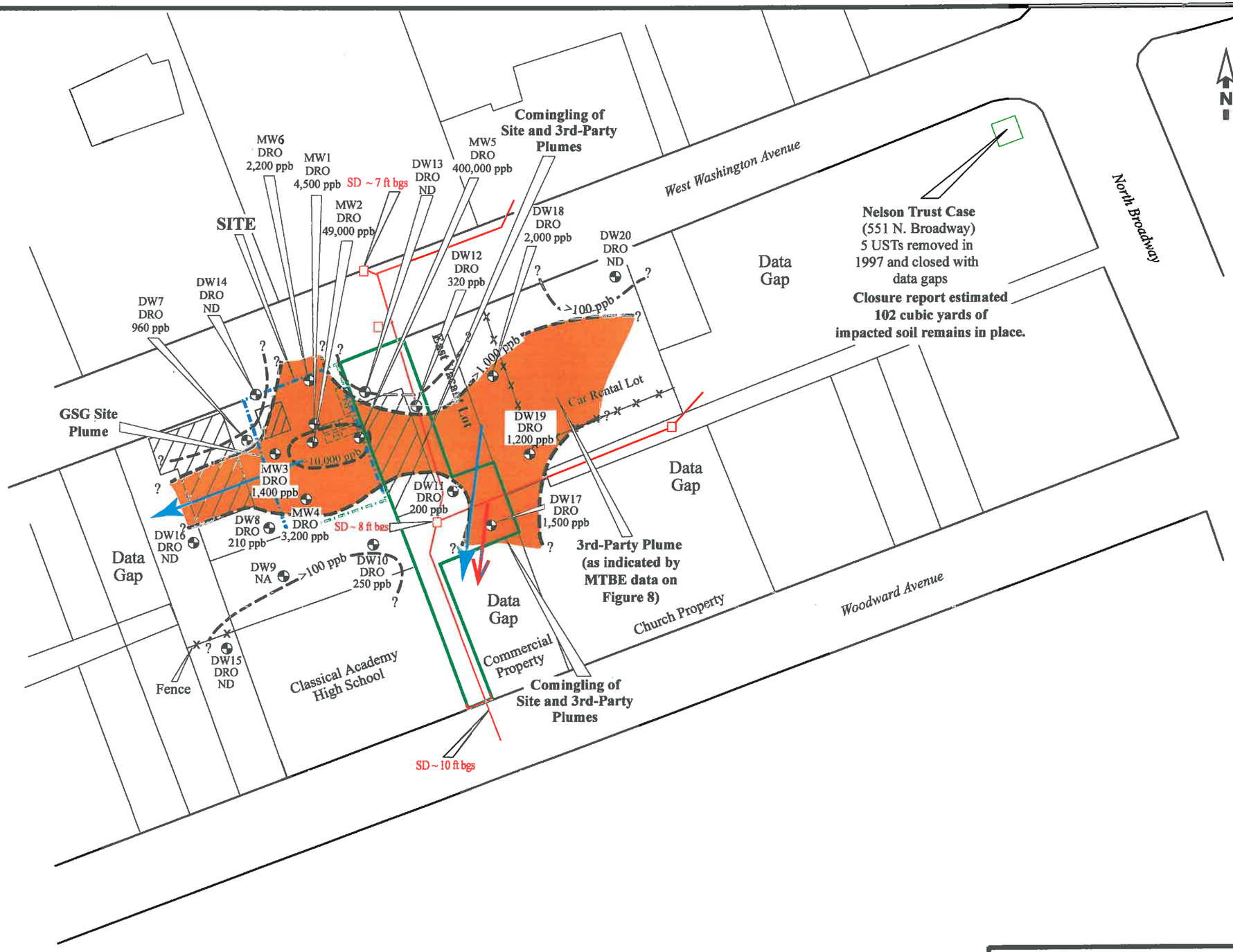
Gasoline-Impacted Groundwater Plan

Fourth Quarter, 2013

Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No.
09E3857

Figure 5



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- DW17 — Groundwater Monitoring Well location DW wells installed by DES, MW wells installed by others
- DRO — Diesel-range organics (DRO) by EPA Method 8015 modified in parts per billion (ppb) (December 11-13, 2013)
- SD ~ 6 ft bgs — Storm drain inlet (bottom of storm drain indicated)
- NA — Data not available because DW9 not sampled due to plant root obstructions in the well.
- ND — Not detected at concentration above the laboratory detection limit.
- >10,000 ppb / >1,000 ppb / >100 ppb (High / Low) — Degraded gasoline (as DRO) iso-concentration contour in ppb
- Diverged contamination migration direction
- Primary Groundwater Flow (December 2013) (and contamination migration pathway)

REFERENCE:
DES Report (April 3, 2014) - Figure 5

0 100 200
Approximate Scale in feet

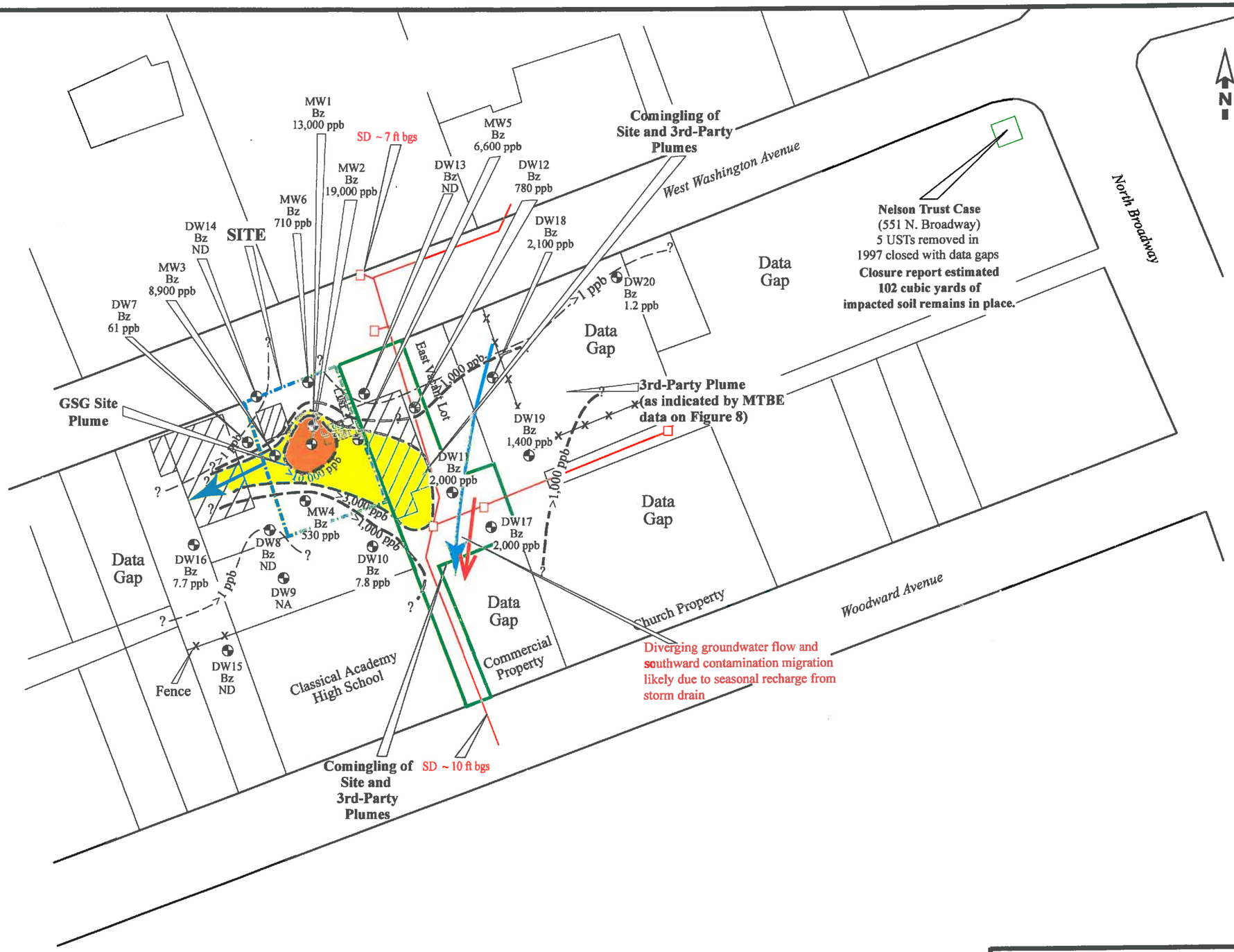
Disclaimer: This figure is an interpretation based on available data. Actual site conditions may differ. All locations and dimensions are approximate.

Donan Environmental Services, Inc.

Degraded Gasoline as DRO-Impacted Groundwater Plan
Fourth Quarter, 2013
Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No. 09E3857

Figure 6



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- Approximate Site Boundary
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- DW17 — Groundwater Monitoring Well location DW wells installed by DES, MW wells installed by others
- Bz — Benzene by EPA Method 9260 modified in parts per billion (ppb) (December 11 -13 2013)
- SD ~ 6 ft bgs — Storm drain inlet (bottom of storm drain indicated)
- NA — Data not available because DW9 not sampled due to plant root obstructions in the well.
- ND — Not detected at concentration above the laboratory detection limit.
- Primary Groundwater Flow (December 2013) (and contamination migration pathway)
- Diverged contamination migration direction
- >10,000 ppb / >3,000 ppb / >1,000 ppb / >1 ppb — Benzene iso-concentration contour in ppb (High ~ Low)

REFERENCE:
DES Report (April 3, 2014) - Figure 6

0 100 200
Approximate Scale in feet

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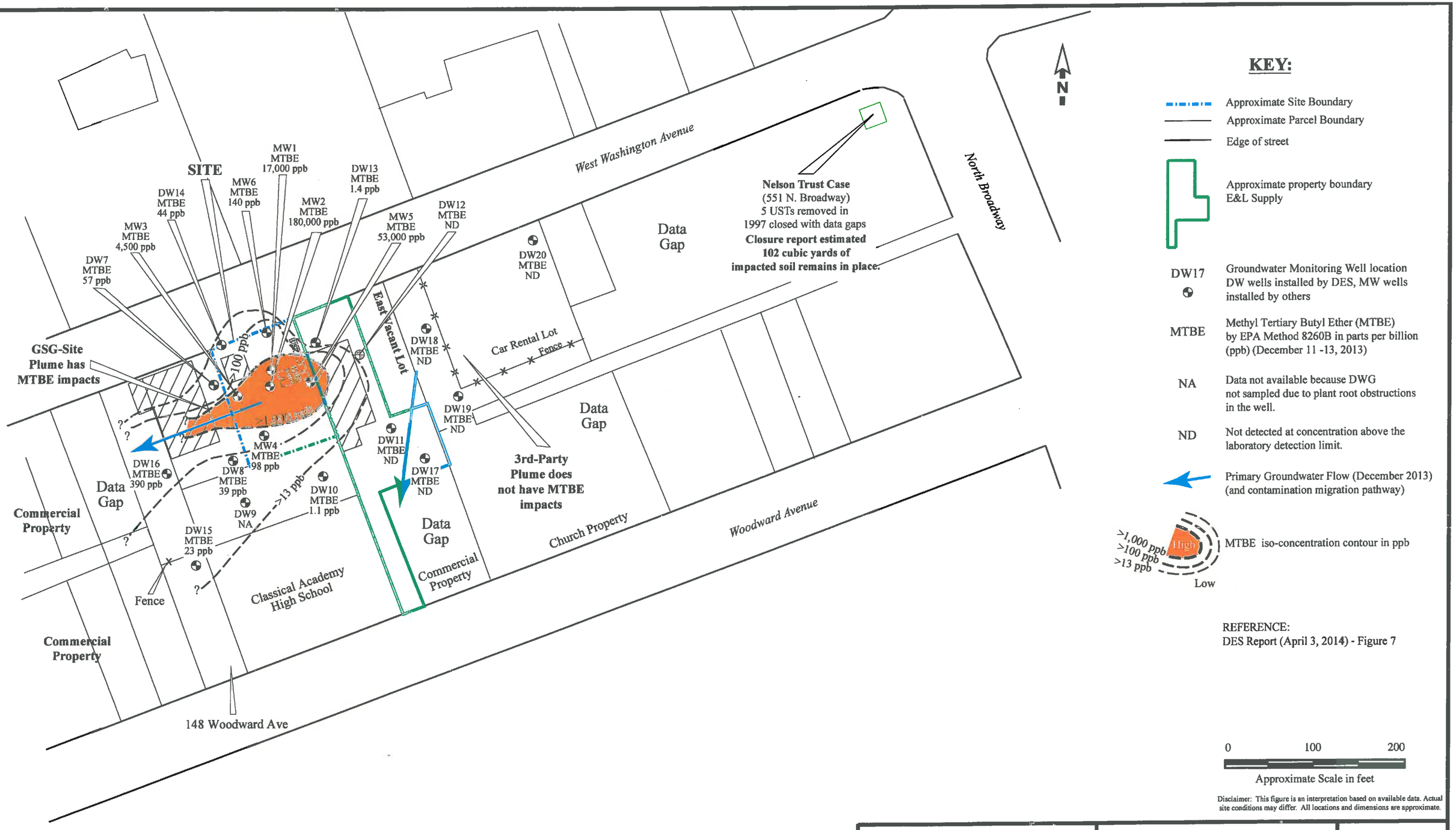
Donan Environmental Services, Inc.

Benzene-Impacted Groundwater Plan
Fourth Quarter, 2013
Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No. 09E3857

Figure 7



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- DW17 — Groundwater Monitoring Well location DW wells installed by DES, MW wells installed by others
- MTBE — Methyl Tertiary Butyl Ether (MTBE) by EPA Method 8260B in parts per billion (ppb) (December 11 -13, 2013)
- NA — Data not available because DWG not sampled due to plant root obstructions in the well.
- ND — Not detected at concentration above the laboratory detection limit.
- Primary Groundwater Flow (December 2013) (and contamination migration pathway)
- >1,000 ppb / >100 ppb / >13 ppb — High / Low — MTBE iso-concentration contour in ppb

REFERENCE:
DES Report (April 3, 2014) - Figure 7

0 100 200
Approximate Scale in feet

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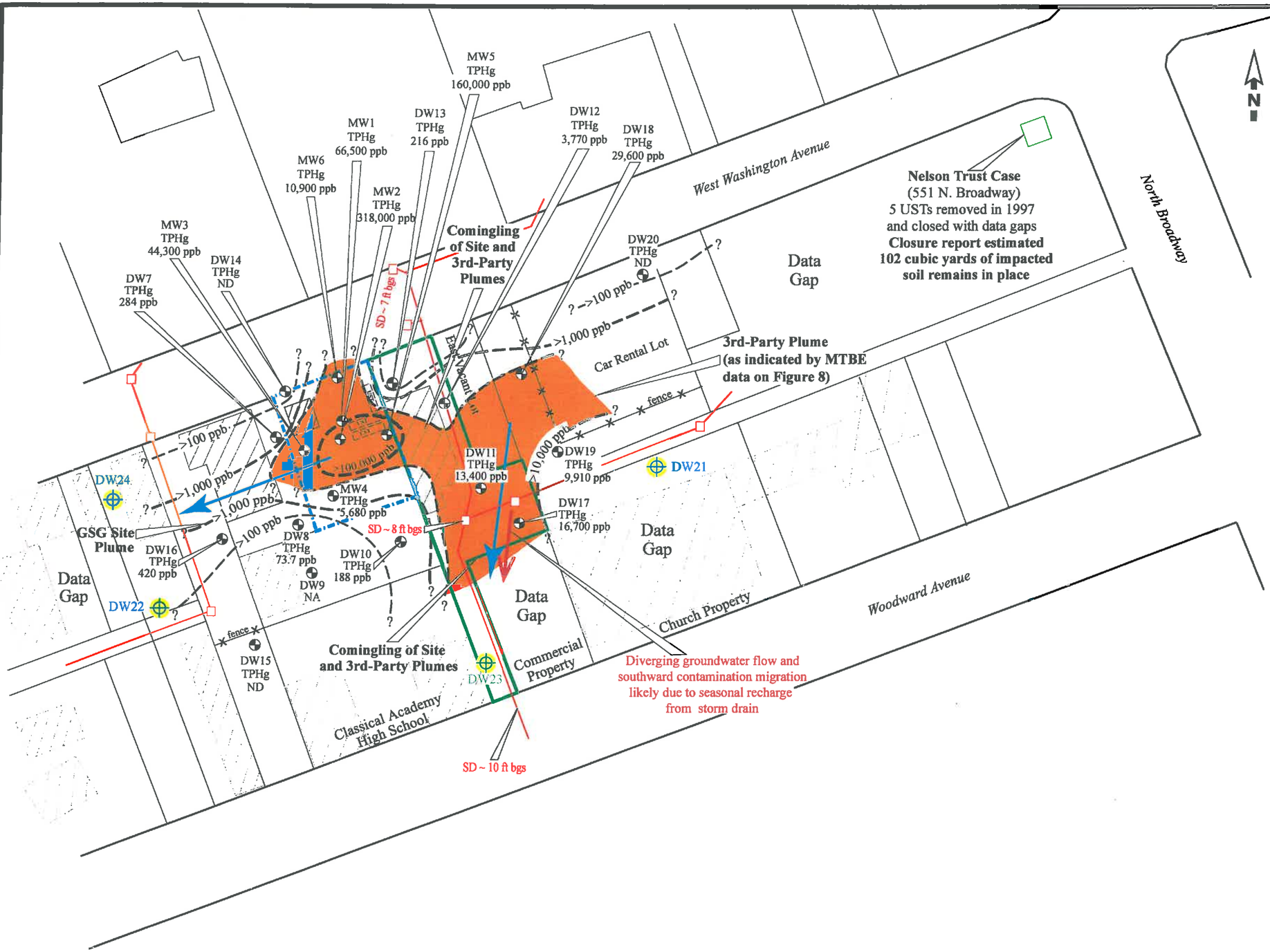
Donan Environmental Services, Inc.

MTBE-Impacted Groundwater Plan
Fourth Quarter, 2013
Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No. 09E3857

Figure 8



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- Approximate property boundary E&L Supply
- Building outline
- DW21 — Proposed groundwater monitoring well
- DW17 — Groundwater Monitoring Well location DW wells installed by DES, MW wells installed by others
- TPHg — Total petroleum hydrocarbons-gasoline by EPA Method 8015 modified in parts per billion (ppb) (December 11-13, 2013) from DES report (April 3, 2014)
- SD ~ 6 ft bgs — Storm drain inlet (bottom of storm drain indicated)
- NA — Data not available because DW9 not sampled due to plant root obstructions in the well.
- ND — Not detected at concentration above the laboratory detection limit.
- Primary Groundwater Flow (December 2013) (and contamination migration pathway)
- Diverged contamination migration direction
- Gasoline (as TPHg) iso-concentration contour in ppb (>100,000 ppb, >10,000 ppb, >1,000 ppb, >100 ppb; High; Low)

0 100 200

Approximate Scale in feet

Disclaimer: This figure is an interpretation based on available data. Actual site conditions may differ. All locations and dimensions are approximate.

Donan Environmental Services, Inc.

Proposed Groundwater Monitoring Well Locations

Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No. 09E3857

Figure 9

SUPPORT DOCUMENTS

DEH Letter (February 21, 2014)
LTCP Checklist as of June 21, 2013
Impediments to Closure as of February 5, 2014
DES Report (January 8, 2014) - Figure 4
DES Report (January 8, 2014) - Figure 16
Example DW7 Borehole Log

County of San Diego

JACK MILLER
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
P.O. BOX 129261, SAN DIEGO, CA 92112-9261
858-505-6700/1-800-253-9933
www.sdcdeh.org

ELIZABETH POZZEBON
ASSISTANT DIRECTOR

February 21, 2014

Mr. Samuel Boyd
Golden State Gasoline, Inc.
181 N. 2nd Street
El Cajon, CA 92121

Dear Mr. Boyd:

UNAUTHORIZED RELEASE #H03089-001
RESPONSE LETTER
GOLDEN STATE GASOLINE, INC.
225 W.WASHINTON AVENUE, ESCONDIDO, CA 92025

The Department of Environmental Health (DEH), Site Assessment and Mitigation Program (SAM) reviewed the *Site Assessment Report Soil and Groundwater Investigation Third Quarter 2013,* dated January 8, 2014, and *Technical Report Third Quarter 2013 High Vacuum Dual-phase Extraction Pilot Test*, dated January 9, 2014, both prepared by Donan Environmental Services, Inc., (DES).

Based on a review of the reports and the case file, SAM has the following comments and requirements:

Site Assessment Report Soil and Groundwater Investigation

The reports recommends further soil and groundwater assessment, implementing an additional Interim Remedial Action Plan (IRAP), continued quarterly groundwater monitoring and sampling, discontinuation of Total Petroleum Hydrocarbons as diesel analysis, and the replacement of groundwater monitoring well DW9.

Based on a review of the report and the case file, SAM concurs with the above recommendations and has the following comments and requirements:

- Proposed wells DW-26 and DW-27 located at 551 North Broadway, Escondido, CA are not necessary.
- Proposed well DW-24 is not necessary.
- Proposed well DW-23 should be relocated approximately 50 feet south.
- Proposed well DW-22 should be relocated north of the conveyance system approximately 100 feet north.

By March 28, 2014, submit a workplan to reinstall DW-9 and to conduct additional site assessment of soil and groundwater impacts.

High Vacuum Dual-phase Extraction (HVDPE) Pilot Test

The report recommends performing a HVDPE event on monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5 as a continuation of the Pilot Test presented above. The HVDPE event proposes shutdown criteria of photo ionization detector (PID) reading over three days below 250 parts per million by volume or no detectable product in pumping wells.

Based on a review of the report and the case file, SAM concurs with the above recommendations and has the following requirements:

- An interim remedial action is approved for 30 days or until the shutdown criteria outlined above has been met. Following the completion of the 30 day event, a comparative cost analysis must be prepared to evaluate the most appropriate design for a long term solution.

- During the 30 day event, collect vapor samples for laboratory analysis once a day for the first 5 days. Subsequent sampling should be conducted every 5 days with corresponding high PID samples. Additionally, prior to shut down, provide a comparative evaluation of PID reading versus laboratory analytical data.

- Following completion of the 30 day event, two quarters of groundwater monitoring and sampling are required to evaluate the response of the above remedial actions.

By April 28, 2014, implement the 30 day HVDPE event as proposed above and the SAM IRAP approval letter dated December 13, 2011.

If you have any questions regarding this project, please call me at (858) 505-6978.

Sincerely,

CRAIG M. BURNETT, PG 8182
Environmental Health Specialist
Site Assessment and Mitigation Program

cc: Mr. Greg Delson, DES

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

GOLDEN STATE GASOLINE (T0607302617) - (MAP)

225 W WASHINGTON AV
ESCONDIDO, CA 920252631
SAN DIEGO COUNTY
LUST CLEANUP SITE

CLEANUP OVERSIGHT AGENCIES
SAN DIEGO COUNTY LOP *(LEAD)* - *CASE #: H03089-001*
CASEWORKER: *CRAIG BURNETT*
SAN DIEGO RWQCB (REGION 9) - *CASE #: 9UT3858*

CUF Claim #:	16295
CUF Priority Assigned:	C
CUF Amount Paid:	$344,484

LTCP CHECKLIST AS OF 6/21/2013

VIEW PATH TO CLOSURE PLAN | BACK TO CASE SUMMARY

General Criteria - *The site satisfies the policy general criteria* — **NO**

a. Is the unauthorized release located within the service area of a public water system? — **YES**
Name of Water System : City of Escondido

b. The unauthorized release consists only of petroleum (info). — **YES**

c. The unauthorized ("primary") release from the UST system has been stopped. — **YES**

d. Free product has been removed to the maximum extent practicable (info). — **NO**
Free Product Remaining: Not Measureable (Sheen)
Removal Methods Tried : Did Not Try to Remove FP

e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed (info). — **NO**
Description:
- **Groundwater Assessment Incomplete - Areal Extent of Contamination Not Defined**
- **Soil Assessment Incomplete - Areal Extent Not Defined**

f. Secondary source has been removed to the extent practicable (info). — **NO**
Impediment to Removing Secondary Source:
- **Remediation Has Not Been Attempted**

g. Soil or groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15. — **YES**

h. Does a nuisance exist, as defined by Water Code section 13050. — **NO**

1. Media-Specific Criteria: Groundwater - *The contaminant plume that exceeds water quality objectives is stable or decreasing in areal extent, and meets all of the additional characteristics of one of the five classes of sites listed below.* — **NO**

EXEMPTION - Soil Only Case (Release has not Affected Groundwater - Info) — **NO**

Does the site meet any of the Groundwater specific criteria scenarios? — **NO**

ADDITIONAL QUESTIONS - The following conditions exist that do not meet the policy criteria:

Plume Length (That Exceeds Water Quality Objectives) :
- Unknown

Plume is Stable or Decreasing in AREAL Extent :
- Unknown

Free Product in Groundwater :
- Yes

Free Product Has Been Removed to the Maximum Extent Practicable :
- Unknown

For sites with free product, the Plume Has Been Stable or Decreasing for 5-Years (info) :
- No

For sites with free product, owner Willing to Accept a Land Use Restriction (If required) :
- Unknown

Free Product Extends Offsite :
- Unknown

Benzene Concentration :
- ≥ 3,000 µg/l

MTBE Concentration :
- ≥ 1,000 µg/l

Nearest Surface Water Body (From Plume Boundary) :
- > 250 Feet and ≤ 1,000 Feet

2. Media Specific Criteria: Petroleum Vapor Intrusion to Indoor Air - *The site is considered low-threat for the vapor-intrusion-to-air pathway if site-specific conditions satisfy items 2a, 2b, or 2c*	**NO**
EXEMPTION - Active Commercial Petroleum Fueling Facility	**NO**
Does the site meet any of the Petroleum Vapor Intrusion to Indoor Air specific criteria scenarios?	**NO**

ADDITIONAL QUESTIONS - The following conditions exist that do not meet the policy criteria:

Soil Gas Samples :
- Taken Incorrectly

Exposure Type :
- Commercial

Free Product :
- In Groundwater

Bioattenuation Zone Thickness :
- ≥ 5 Feet and < 10 Feet

O2 Data in Bioattenuation Zone :
- No O_2 Data

Benzene in Groundwater :
- ≥ 1,000 µg/l

Soil Gas Benzene :
- ≥ 85,000 µg/m^3 and < 280,000 µg/m^3

Soil Gas EthylBenzene :
- ≥ 3,600 µg/m^3 and < 1,100,000 µg/m^3

Soil Gas Naphthalene :
- ≥ 310 µg/m^3 and < 93,000 µg/m^3

3. Media Specific Criteria: Direct Contact and Outdoor Air Exposure - *The site is considered low-threat for direct contact and outdoor air exposure if it meets 1, 2, or 3 below.*	**YES**
EXEMPTION - The upper 10 feet of soil is free of petroleum contamination	**NO**
Does the site meet any of the Direct Contact and Outdoor Air Exposure criteria scenarios?	**YES**
3.1 - Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in the following table (LINK) for the specified depth below ground surface.	YES

Additional Information	
Should this case be closed in spite of NOT meeting policy criteria?	NO

0.1914063 seconds

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER

GOLDEN STATE GASOLINE (T0607302617) - (MAP)

225 W WASHINGTON AV
ESCONDIDO, CA 920252631
SAN DIEGO COUNTY
LUST CLEANUP SITE

CLEANUP OVERSIGHT AGENCIES
SAN DIEGO COUNTY LOP *(LEAD)* - *CASE #: H03089-001*
CASEWORKER: *CRAIG BURNETT*
SAN DIEGO RWQCB (REGION 9) - *CASE #: 9UT3858*

CUF Claim #:	16295
CUF Priority Assigned:	C
CUF Amount Paid:	$344,484

CLOSURE REVIEW - THIS CASE IS NOT READY FOR CLOSURE AS OF 5/12/2010

VIEW ALL POSSIBLE CLOSURE REVIEW VALUES

IMPEDIMENTS TO CLOSURE

SITE ASSESSMENT INCOMPLETE

- Extent of Contamination Has Not Been Determined - *The lateral and vertical extent of soil and contamination has not been delineated. Dissolved constituents of TPH as gasoline (e.g., benzene and MTBE) have been detected in groundwater samples from wells located immediately adjoining the property's west, north, and east boundaries.*
- Potential Risks, Threats, And Other Environmental Concerns Have Not Been Adequately Identified And Assessed - *A soil vapor survey for an off-site building was conditionally approved 11/21/2007, but the work has not been done. Also, four offsite groundwater monitoring wells were proposed, but have not been installed.*
- Sensitive Receptor Survey Has Not Been Completed - *A sensitive receptor survey was initiated in 2002 to assess potential water supply and surface water receptors, but it needs to be updated and expanded to include the occupants of onsite and offsite buildings where vapor migration is a concern.*

PLUME INSTABILITY

- Groundwater Contamination Plume Not Stable or Decreasing - *No contaminant concentration contour maps have been prepared. A least four quarters of consecutive groundwater sampling rounds are needed before trend analyses may be prepared.*

GROUNDWATER IMPACTS

- Groundwater Impacted Above Other Cleanup Goal - *Dissolved contaminant concentrations for benzene, MTBE, and TBA are elevated and exceed their respective MCLs.*

PROCEDURAL IMPEDIMENTS

- RP Says They Do Not Have Adequate Funds to Initiate or Continue Work at the Site - *RP has not resumed site investigation activities since he was informed that excavation and offsite disposal/treatment of petroleum hydrocarbon-impacted soil would not be considered until the site assessment was completed and a CAP was prepared.*

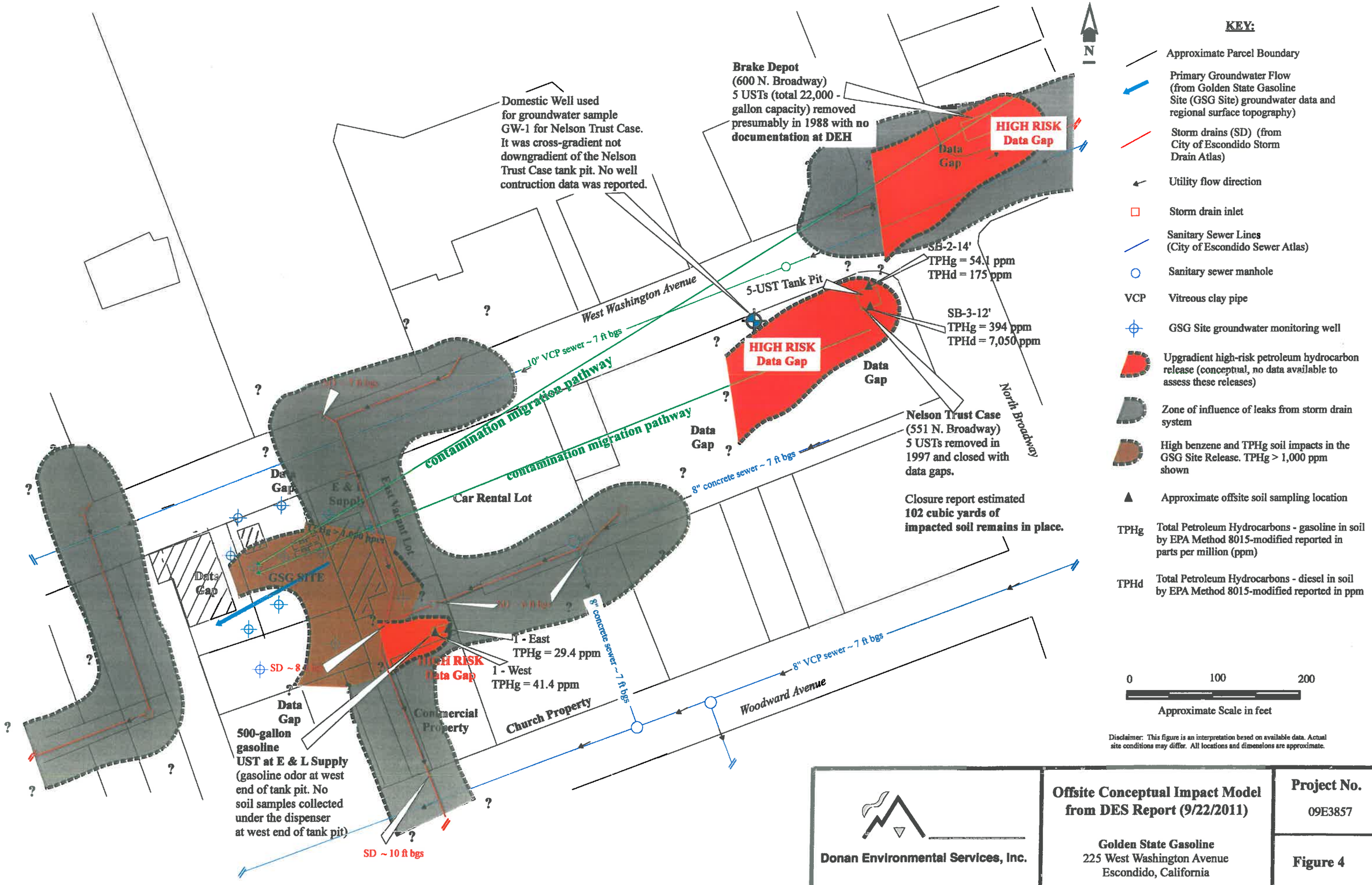
BENEFITS OF ADDITIONAL WORK

- Fill-in RI Data Gaps - *Delineation of soil and groundwater impacts has not been achieved. Soil vapor has not been assessed.*
- Complete CSM and Our Understanding of Hydrogeologic Regime and Fate and Transport of Contaminants - *Although geologic cross-sections have been prepared, delineation of soil and groundwater impacts is needed to update them.*

SENSITIVE RECEPTORS LIKELY TO BE IMPACTED AND TIME FRAME FOR IMPACT

SENSITIVE RECEPTOR	TIME FRAME FOR IMPACT	COMMENTS
Groundwater	Already Impacted	Benzene, MTBE, and TBA concentrations in groundwater exceed their respective MCLs by several orders of magnitude.

0.078125 seconds



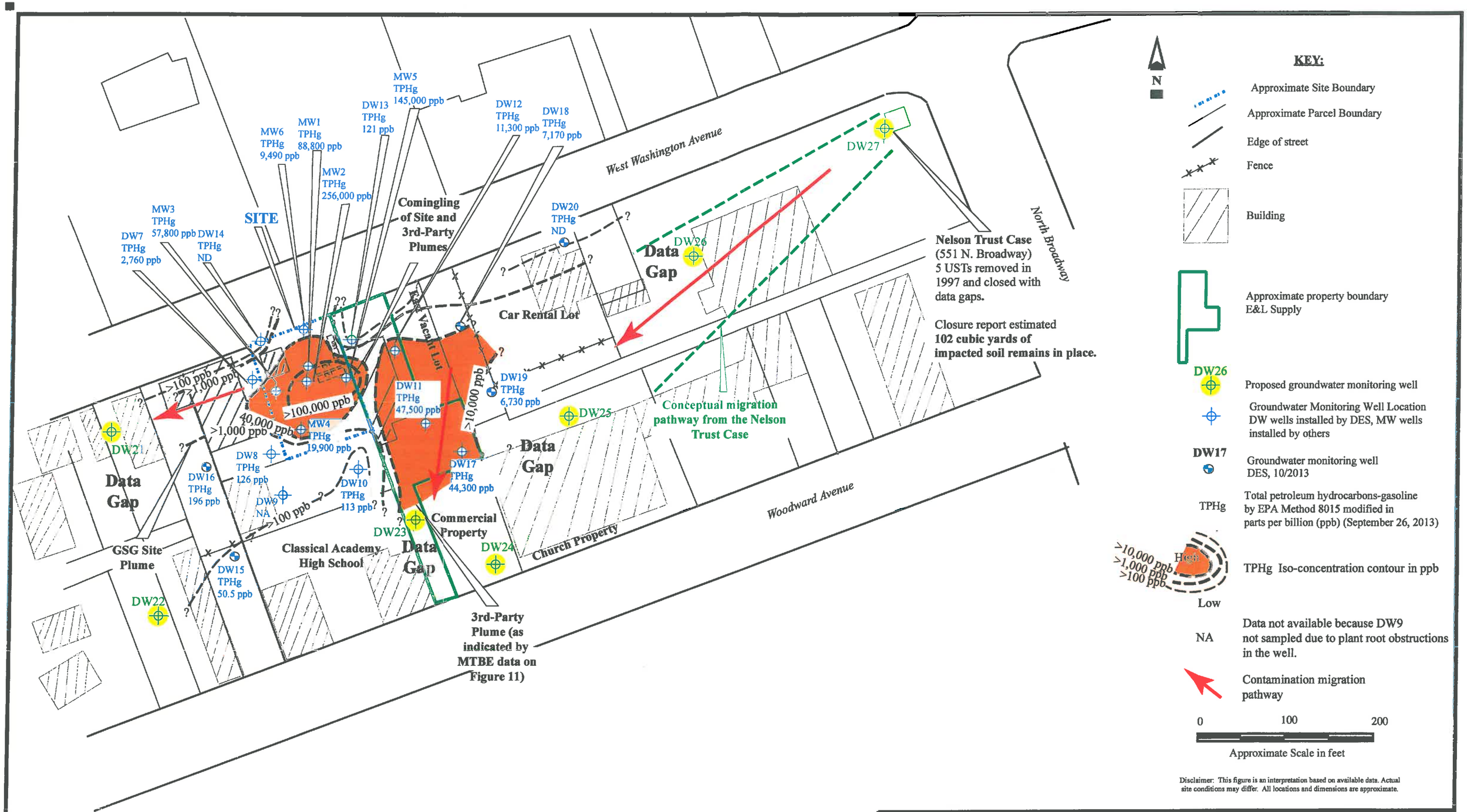
Donan Environmental Services, Inc.

Offsite Conceptual Impact Model from DES Report (9/22/2011)

Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No.
09E3857

Figure 4



N

KEY:

- Approximate Site Boundary
- Approximate Parcel Boundary
- Edge of street
- Fence
- Building
- Approximate property boundary E&L Supply
- DW26 — Proposed groundwater monitoring well
- Groundwater Monitoring Well Location DW wells installed by DES, MW wells installed by others
- DW17 — Groundwater monitoring well DES, 10/2013
- TPHg — Total petroleum hydrocarbons-gasoline by EPA Method 8015 modified in parts per billion (ppb) (September 26, 2013)
- >10,000 ppb, >1,000 ppb, >100 ppb — High, Low — TPHg Iso-concentration contour in ppb
- NA — Data not available because DW9 not sampled due to plant root obstructions in the well.
- Contamination migration pathway

0 100 200

Approximate Scale in feet

Disclaimer: This figure is an interpretation based on available data. Actual site conditions may differ. All locations and dimensions are approximate.

Donan Environmental Services, Inc.

Proposed Groundwater Monitoring Well Locations

Golden State Gasoline
225 West Washington Avenue
Escondido, California

Project No. 09E3857

Figure 16

BOREHOLE LOG

Number: DW7

Donan Environmental Services, Inc.

Client: GSG-ES

Job No: 09E3857

Sheet: 1 of 1

DES Rep: Greg Delson

Location: 225 West Washington Avenue, Escondido, CA
DEH Permit #LMON107271

Drilling Company/Driller: Tri-County Drilling Co., James Sauer

Date Drilled:	Time:	Drill Rig/ Sampling Method:	Borehole Dia:	Casing Dia:	Surface Elevation:
8/14/10	9:00 AM Start, 11:30 AM End	CME 75 HSA, CAL Split Spoon	8"	2"	647.66 ft

SAMPLE LOG						BOREHOLE LOG			Well Log
Sample Number	TPH-g Results (ppm)	PID (ppmv)	Depth in Feet	sample	Blow Counts	USCS Symbols	Graphic Log	Geologic Description (Formation, soil type, color, grain, minor soil component, moisture, density, odor, etc.)	
			0			SM		0 - 4" Asphaltic concrete 0.5' Fill: Silty Sand: dark brown (7.5YR3/2), well graded fill, dry, no hydrocarbon odor	concrete
			2			SC		2.0' Native: Clayey Sand: dark brown (7.5YR3/2), dry, loose, no hydrocarbon odor	bentonite chips
			5					5.0' No sample, for safety, due to nearby natural gas line, Air-Knifed past 5-foot sampling interval	
DMW7-10	2,980	1,679	10		7 12 17	SM		10.0' Native: Silty Sand: dark brown (7.5YR3/2), fine - grained sand, some clay, slightly moist, loose, strong gasoline odor	#3 Sand
DMW7-15	ND<1	546	15		7 24 38	SM		15.0' Native: Silty Sand: dark brown (7.5YR3/2), fine - medium - grained sand, trace gravel clasts, moist, firm, gasoline odor	
DMW7-20	ND<1	5	20		12 27 28	SP		20.0' Native: Sand: dark brown (7.5YR3/2), poorly graded, fine - medium - grained sand, trace silt, wet, loose, no hydrocarbon odor	
								Groundwater at 12' bgs Termination Depth = 21' bgs	

Well Construction:
2-inch diameter PVC
15 feet Screen 0.02" slot - 5 ft to 20 ft below grade
5 feet Blank - grade to 5 ft bg
2-inch diameter PVC Bottom Cap
#3 Sand - 4 ft to 20 ft bg (5.57 cu. ft.)
Bentonite chips hydrated - 2 ft to 4 ft bg (0.021 cu.ft.)
Traffic box with concrete pad - grade to 2 ft bg
Concrete 4.92 cu. ft.