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February 12, 2015

Mr. Mark Detterman
Senior Hazardous Materials Specialist, PG, CEG
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: Alameda County Letters dated April 7, 2014 and January 20, 2015
Request for Focused Site Conceptual Model and Data Gap Work Plan
2013 San Pablo Ave
Oakland, CA 94608
Fuel Leak Case No. RO0000074
Geotracker Global ID T0600100666

Dear Mr. Detterman:

Greyhound Lines, Inc. (Greyhound) is transmitting the attached documents to Alameda County Environmental Health (ACEH) in response to ACEH letters dated April 7, 2014 and January 20, 2015 regarding the above referenced site (Site). The attached documents include a Green Star Environmental letter dated February 12, 2015 with a Focused Site Conceptual Model and Data Gap Investigation Work Plan for the Site and a Groundwater Monitoring Report dated February 10, 2015 which documents a groundwater sampling event conducted at the Site in August 2014.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached documents are true and correct to the best of my knowledge.

Sincerely,

GREYHOUND LINES, INC.

Susan Kirkpatrick
Sr. Environmental Project & Program Manager

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Dear Mr. Detterman:

On behalf of Greyhound Lines, Inc. (Greyhound), Green Star Environmental (Green Star) has prepared a response to the Alameda County Environmental Health (ACEH) letters dated April 7, 2014 and January 20, 2015. In the letter dated April 7, 2014 the ACEH reviewed the case file for the subject site (Site) which included a Revised Site Conceptual Model (SCM) submitted by Green Star in a report dated December 21, 2011. The ACEH identified several issues in a set of Technical Comments as preventing the Site from moving toward closure under the State Water Resources Control Board (SWRCB) Low Threat Closure Policy (LTCP) for underground storage tank sites. Specifically, the Site did not meet the specifications for General Criteria f (Secondary Source Removal) and the Media Specific Criteria for Groundwater, Vapor Intrusion to Indoor Air, and Direct Contact and Outdoor Air Exposure. Ultimately the ACEH letter requested the submittal of a Focused SCM and Data Gap Investigation Workplan for the Site in order to address the ACEH's Technical Comments.

Upon review of the ACEH letter and due to a lack of current data from the Site, Green Star requested an extension to evaluate all options to address the data gaps, the possible secondary source, and exposure pathways in a letter dated June 17, 2014. In subsequent e-mail correspondence between the ACEH and Green Star, the extension was granted to allow Green Star to conduct a groundwater monitoring event at the Site to collect current groundwater data and to respond to the ACEH letter. The groundwater monitoring event was conducted in August of 2014 and the results are transmitted in the attached Groundwater Monitoring Report dated February 10, 2015. The groundwater data obtained from the August 2014 groundwater monitoring event was used in the evaluation and response to the Technical Comments outlined in the April 7, 2014 ACEH letter.

Using the groundwater data from the August 2014 groundwater monitoring event as well as existing soil and soil vapor data, Green Star has prepared and is submitting under this cover letter a Focused SCM and Data Gap Investigation Work Plan (Table 1 and 2 respectively) per the request of the ACEH. In the Focused SCM and Data Gap Investigation Work Plan, Green Star has addressed the Technical Comments in the April 7, 2014 ACEH letter as listed below:

ITEM 1: GENERAL CRITERIA F – SECONDARY SOURCE HAS BEEN REMOVED TO THE EXTENT PRACTICABLE

In the April 7, 2014 letter, the ACEH concluded that insufficient data and analysis had been presented to support that secondary source material has been removed to the extent practicable. The ACEH cited increasing trends in the concentrations of multiple chemicals of concern (COCs) in several groundwater monitoring wells at the Site. Based on existing soil analytical data from the Site and newly obtained groundwater analytical data from the August 2014 groundwater monitoring event, review of the Site data supports this conclusion that secondary source material in the form of contaminated soils are still present at the site and contribute to the trends of COC concentrations observed in groundwater at the Site.

To address this data gap, Green Star is proposing in the Data Gap Investigation Work Plan that the secondary source material present at the Site in the form of contaminated soils be remediated by Surfactant-enhanced In Situ Chemical Oxidation (ISCO). ICSO remediation will be administered via multiple injection wells installed within the former tankpit at the Site as it is the most likely location of secondary source material based on soil analytical data from the Site. Green Star has determined that because the Site is an active bus terminal and the location of impacted soils at the Site relative to existing structure and utilities, other remediation options such as excavation of the impacted soils is not practical. Green Star believes ISCO is the most effective way to remove the secondary source material at the Site.

ITEM 2: LTCP MEDIA SPECIFIC CRITERIA FOR GROUNDWATER

In the April 7, 2014 letter, the ACEH concluded that the site did not meet the LCTP Media Specific Criteria for Groundwater. The ACEH cited increasing trends in the concentrations of multiple COCs in several groundwater monitoring wells at the Site, a lack of a definitive downgradient boundary of the groundwater plume, uncertainty as to the use of the silica gel cleanup technique, lack of maps of the performed water well survey, and the limited scope of naphthalene, poly-aromatic hydrocarbon (PAH), and volatile organic compound (VOC) analysis as the main factors in coming to the conclusion. It should be noted that water well data obtained from the appropriate agencies was requested to remain confidential as requested by each agency under Section 13752 and therefore no map has been produced of the water well search.

Based on current groundwater analytical data obtained from the Site in August of 2014 review of the Site data supports the ACEH conclusion and as previously mentioned in Item 1 above believes secondary source material in the form of contaminated soils still present at the site contribute to the trends of COC concentrations observed in groundwater at the Site. Green Star is confident that the Surfactant-enhanced ISCO remediation treatment described in Item 1 above will be highly effective at removing this secondary source material and subsequently be effective at reducing the groundwater plume as well. Additionally, as outlined in the Data Gap Investigation Work Plan, Green Star proposes to conduct one year of groundwater monitoring in four quarterly groundwater monitoring events following completion of remediation activities to evaluate the effectiveness of the treatment on the groundwater plume at the Site. The analysis will include use of the silica gel cleanup method as well as analysis of naphthalene, PAHs, and appropriate VOCs as requested by the ACEH. It should be noted that at the silica gel cleanup method was used to analyze samples from the August 2014 groundwater sampling event and the results are presented in the Groundwater Monitoring Report which is also being submitted under this cover letter.

ITEM 3: LTCP MEDIA SPECIFIC CRITERIA FOR VAPOR INTRUSION TO INDOOR AIR

In the April 7, 2014 letter, the ACEH concluded that the Site did not meet the SWRCB LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air. However, based on current groundwater data obtained from the Site in August 2014, Green Star believes the Site now meets the LTCP Media

Specific Criteria Vapor Intrusion into Indoor Air pathway. One way for a site to meet the LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air is to be free of observable PSH in groundwater or soil, have a maximum concentration less than 1,000 ug/L of benzene present in groundwater, and have a bioattenuation zone of at least 10 feet from the top of the groundwater table to the surface or building foundation where TPH concentration in soils are less than 100 mg/kg. The Site meets each of these criteria and therefore meets the SWRCB LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air. Furthermore, treatment of the groundwater plume by ISCO will also reduce concentrations of COCs in groundwater and the potential for vapor intrusion.

Additionally, it should be noted that the SWRCB LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air states that exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities. Therefore, satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities. As the Site is an active bus terminal with refueling activities, Green Star believes the Site is exempt from the SWRCB LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air.

ITEM 4: LTCP MEDIA SPECIFIC CRITERIA FOR DIRECT CONTACT AND OUTDOOR AIR

In the April 7, 2014 letter, the ACEH concluded that the site did not meet the LCTP Media Specific Criteria for Direct Contact and Outdoor Air. The ACEH cited a lack of sufficient soil sampling data from the shallow 0-5 and 5-10 foot below ground surface interval as the main factors for coming to their conclusion.

Green Star has reviewed the Site data which supports the ACEH conclusion. To address this data gap, Green Star is proposing, as detailed in the Data Gap Investigation Work Plan, that prior to the installation of injection wells as part of the proposed Surfactant-enhanced ISCO remediation treatment that shallow soil samples from the specified intervals be collected from the area of current or likely dispenser locations and analyzed for the appropriate VOCs, naphthalene, and PAHs as requested by the ACEH. The analytical results from the shallow soil samples will be used to determine if the site does or does not meet the LCTP Media Specific Criteria for Direct Contact and Outdoor Air or if the proposed remediation treatment plan will need to be modified in the event the shallow soil samples do not meet the LTCP specifications. Additionally, Green Star believes that treatment via Surfactant-enhanced ISCO as proposed will further aid in meeting the LCTP Media Specific Criteria for Direct Contact and Outdoor Air and proposes to obtain confirmation soil samples from the shallow intervals described in order to evaluate the effectiveness of the treatment if the initial soil sampling shows that the Site does not meet the LCTP Media Specific Criteria for Direct Contact and Outdoor Air

Green Star and Greyhound would like to thank the ACEH for its time and attention to this project. Should you have any questions or comments regarding this project, please do not hesitate to call me at (214) 222-8752.

Sincerely,

GREEN STAR ENVIRONMENTAL

Leonard C. Albright
Principal

PROFESSIONAL GEOLOGIST
WILLIAM R. LITTLE
No. 7473
STATE OF CALIFORNIA

William Little, P.G.
Advanced GeoEnvironmental, Inc.
California P.G. #7473

Attachments: Groundwater Monitoring Report dated February 10, 2015
Focused Site Conceptual Model (Table 1)
Data Gap Investigation Work Plan (Table 2)
Figure 1 – Proposed Injection Point Locations
Figure 2 – Construction Detail for Soil Boring Converted to Injection Point

cc: Susan Kirkpatrick, FirstGroup America, Inc., Cincinnati, OH

Table 1 - Tabular Site Conceptual Model (SCM)
Oakland Bus Terminal
2103 San Pablo Avenue
Oakland, Alameda County, California
Green Star Project No. 14-1379

Reference No.	SCM Element	SCM Sub-Element	Description	Data Gap	Proposed Investigation or Work
1	Site Background	General Background Information	The Site has been developed as a bus terminal since 1929. Six, out-of-service underground storage tanks (USTs) were removed from the Site in April 1990. The USTs were reportedly out of use for at least two decades prior to their removal. Subsurface investigations between 1989 and 1997 indicated that petroleum hydrocarbon impacts, including phase-separated hydrocarbons (PSH), were present in soils and groundwater at the Site. Between October 20 and 22, 2010, Green Star advanced twelve additional soil borings at the Site in order to further evaluate subsurface conditions in the area of the former USTs. In addition, Green Star conducted a groundwater monitoring event in August 2014, using the network of 12 wells at the Site, to document current groundwater conditions. Site figures and tables of data collected from the site can be found in Green Star Environmental's (Green Star's) Revised Site Conceptual Model Dated December 22, 2011 and the Groundwater Monitoring Report dated February 10, 2015.	N/A	N/A
2		Previous Remediation Activities	In March 1991, approximately 714 tons of stockpiled, tankhold-related soils were removed from the Site and treated via solidification/stabilization processes at Gibson Oil Refinery in Bakersfield, California. It was reported by a previous consultant that soils treated by Gibson were typically utilized as road base material. This indicates that the excavated tankpit was backfilled with imported fill and not the existing, contaminated stockpiles. A groundwater remediation system was operated from 1992 to 1997 to recover phase-separated hydrocarbons (PSH) and dissolved-phase impacts in groundwater utilizing total-fluid recovery pumps in four, four-inch diameter wells (ES-1, ES-5, BC-1 and ES-2). The recovered fluids were treated with an oil/water separator and activated carbon absorption columns prior to the permitted discharge to the sanitary sewer. Data indicate that the system was effective as PSH greater than 0.1-foot has not been detected since 1995.	N/A	N/A
3		Land Use Category	The Site has been developed as a bus terminal since 1929 and as such is a commercial property. The Site is zoned by the City of Oakland as an area of Central Business Service Commercial/Downtown Residential Open Space Combining zones (C-51/S-17). Due to extensive remodeling upgrades performed on the bus terminal at the Site, it is unlikely that the Site will be utilized in the near or even relatively distant future for any purpose other than bus terminal operations. Adjacent properties with the highest potential to be impacted by petroleum hydrocarbons related to the former source area at the Site are Castro Street followed by Interstate Highway 980 (I-980). Downgradient of I-980 is a commercial property and Brush Street. Beyond Brush Street is a mixed-use neighborhood of commercial and residential properties. The nearest sensitive property downgradient of the Site is a day care center located in the mixed-use neighborhood northwest of Brush Street approximately 485 feet northwest of the Site.	N/A	N/A
4	Physical Setting	Geology	According to the United States Geological Survey (USGS) and the San Francisco Bay Regional Water Quality Control Board (RWQCB), the Site is located in the San Francisco Basin west of the Hayward Fault in the Santa Clara Valley groundwater basin and the East Bay Plain sub-basin. The Site is underlain by unconsolidated Quaternary-aged sediments associated with beach and dune formations. In this area, the Quaternary deposits at the surface are mapped as the Merritt Sands which can be up to 60 feet thick. The Quaternary-aged sediments are assumed to be located on the Cretaceous and Jurassic-aged Franciscan bedrock complex which is approximately 450 ft. below mean seal level (msl) in the area of the Site. Other unconsolidated sediments, which may include the early Pleistocene-aged Santa Clara formation, are present between the Merritt Sands and the Franciscan bedrock. Soils encountered at the Site during subsurface investigations have generally included horizons of clays near the surface which are underlain by sandy soils with some intervals of interbedded silts. An unspecified fill material has been indicated to be present near the surface in several borings. The Site is covered by improved surfaces (concrete or asphalt) which are generally underlain by the clayey soils to approximately 12 to 16 feet below surface grade (bsg). The clayey soils appear to correspond with the Clear Lake-Urban complex of clayey soils described to be present at the Site by the Alameda County Soil Survey3. Although the Urban-Baywood complex of sandy soils is also indicated by the soil survey to be present at the northern portion of the Site, no borings have been advanced in this area. Groundwater has been measured to range from depths of approximately 12 to 22 feet bsg (approximately 3.6 to 9.7 feet msl) and is generally present within a horizon of sandy soils. Geologic cross sections of the region, cross sections of the site, and boring logs dipicting soils encountered at the Site can be found in Green Star's Revised Site Conceptual Model dated December 22, 2011.	N/A	N/A

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5	Physical Setting (Continued)	Hydrogeology	Lake Merritt is the nearest surface water body at approximately 0.50-mile east-southeast from the Site. The Oakland Inner Harbor is located approximately 1.1 miles south-southwest of the Site. Groundwater in the area is utilized for very limited amounts of irrigation, industrial and potable purposes, but shallow groundwater (less than 50 feet bgs) use in the area is most typically for household irrigation purposes4. The RWQCB lists the East Bay Plain groundwater sub-basin as having existing beneficial uses of groundwater in the form of municipal, industrial and agricultural2. The RWQCB indicates that the area had a high density of historic water wells set in the Merritt Sand (greater than five per square mile), but that many of the wells were contaminated by septic fields or saltwater intrusion. The City of Oakland obtains its municipal and drinking water from the East Bay Municipal Utility District (EBMUD). EBMUD obtains the vast majority of water for the system from surface water collected from a watershed of the Sierra Nevada Mountain Range that is stored at the Pardee Reservoir, located approximately 80 miles east-northeast of the Site, with a small percentage of the system water coming from local precipitation runoff stored in area reservoirs.	N/A	N/A
6		Nearby Environmental Projects	A review of ACEH's Local Oversight Program (LOP) on-line database as well as the water well search data detailed in Section 4.1 indicate that several properties in the area of the Site are sources of environmental impacts to soil and groundwater in relation to USTs. Four of these LOP facilities are near the Site. Two facilities, City Center Project Parcel T12 and Sinclair Paint Site, are located adjacent and upgradient to crossgradient of the Site (south-southeast). Based on a September 1999 report, City Center Project Parcel T12 contains fill material contaminated with oil, grease, and metals (Fuel Leak Case RO-0002809); no further information is available on the LOP website. The Sinclair Paint Site was granted closure in January 1998 after a site investigation of former underground storage tanks indicated TPH, MTBE and BTEX contamination in groundwater from temporary well points; no remediation was performed at this site (Fuel Leak Case RO-0002815). The two other facilities, Peerless Stages (2021 Brush Street; approximately 438 feet west-northwest) and Herrington-Olsen Photo (769 22nd Street; approximately 676 feet northwest) are located downgradient of the Site (west-northwest to north-northwest; Figure 9).The data related to the downgradient projects indicate that both projects had soil and groundwater impacts of petroleum hydrocarbons and that both projects have been closed. The nearest downgradient project to the Site, Peerless Stages (Fuel Leak Case RO-0000407) is located approximately 460 feet west-northwest of the Site (Figure 9). The project was closed in February 2002 after the removal of two USTs, excavation of impacted soils, and completion of nine groundwater monitoring events between 1999 and 2001. In their closure letter dated February 15, 2002, ACEH states that 240 ppm TPH-d and 4.0 ppm MTBE remains in soils and 1.20 ppm TPH-d and 1.50 ppm MTBE remains in groundwater at the Site. Residential properties are located immediately downgradient of the impacts and the extent and magnitude of the impacts beneath the residential properties were not evaluated.	N/A	N/A
7	Impact Distribution	Groundwater	A groundwater monitoring event was conducted in August 2014. PSH was not detected in August 2014 and has not been detected since October 1997. The calculated hydraulic gradient was approximately 0.04 ft./ft. The groundwater flow direction was radial in all directions from in the vicinity of monitoring wells ES-5 and ES-7. Analytical results from the groundwater event indicated concentrations of at least one dissolved-phase BTEX constituent were present in five monitoring wells (BC-1, ES-2, ES-3, ES-5, and ES-8), concentrations of at least one dissolved-phase TPH constituent were present in six monitoring wells (BC-1, ES-2, ES-3, ES-4, ES-5, and ES-8), and the only miscellaneous petroleum hydrocarbons detected above laboratory detection limits were naphthalene and DIPE. Additional information including groundwater gradient figures, cummulative graphs of groundwater elevations at the site and PSH thicknesses, and data tables of current and cummulative groundwater analytical results can be found in Green Star's Groundwater Monitoring Report for the Site dated February 10, 2015.	Current data from groundwater at the Site is inconclusive in determining the trend of dissolved-phased contaminants at the Site as well as the downgradient extent of the plume. The Site does not appear to meet the State Water Resources Control Board Low Threat Closure Policy likely due to contaminated soil as secondary source material in contact with groundwater remaining at the Site. Therefore, Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed remediation work and subsequent confirmation sampling of groundwater and soil at the Site in an effort to remediate suspected contaminant source material still present in soil at the Site and move the Site toward final closure under the State Water Resources Control Board Low Threat Closure Policy.	Green Star is recommending in situ chemical oxidation (ISCO) to treat the remaining impacts to the soils at the Site. The proposed injection will be Surfactant-Enhanced ISCO. Green Star believes treatment of the residual impacts observed in soils at the Site will be effective in reducing the concentrations of observed contaminants present in groundwater at the Site. Treatment of the impacted soils at the Site and overall reduction of the concentrations of contaminants at the site will also stabilize or reduce the impacted groundwater plume at and downgradient of the site. Following ISCO remediation activities at the Site, Green Star proposes to conduct one year of post treatment quarterly groundwater monitoring events at the Site to monitor the effectiveness of the ISCO remediation treatment.

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8	Impact Distribution (Continued)	Soil	Between October 20 and 22, 2010, twelve additional soil borings (B-1 to B-12) were advanced at the Site in order to further evaluate subsurface conditions in the area of the former UST tankpit. The borings were advanced to depths ranging from 15 to 20 feet below ground surface (bgs). Selected soil samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), and gasoline range total petroleum hydrocarbons (TPH-g) via EPA Method 8021 and diesel range TPH (TPH-d) via EPA Method 8015. Analytical results indicated at least one BTEX constituent was detected in 12 of 20 analyzed samples, at least one TPH constituent was detected in 19 of 20 analyzed samples, and that MTBE was detected above laboratory detection limits only in sample B-7 (16'). The samples were not analyzed for any other VOCs. Summary tables and figures depicting soil data from the subsurface investigation can be found in Green Star's Revised Site Conceptual Model dated December 22, 2011.	Impacted soils appear to still be present at the Site and are the likely cause of the observed groundwater impacts noted in the previous section. The Site does not appear to meet the SWRCB LTCP likely due to contaminated soil as secondary source material remaining at the Site. Therefore, Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed remediation work and subsequent confirmation sampling of groundwater at the Site in an effort to remediate suspected contaminant source material still present in soil at the Site and move the Site toward final closure under the SWRCB LTCP. Green Star does not intend to collect soil confirmation samples following the ISCO remediation treatment because sufficient soil data from the Site exists to satisfy the SWRCB LTCP except for the Media Specific Criteria for Direct Contact and Outdoor Air which is specifically addressed in Reference Item 9 below.	Green Star is recommending in situ chemical oxidation (ISCO) to treat the remaining impacts to the soils at the Site. The proposed injection will be Surfactant-Enhanced ISCO. This is a relatively new field verified technology capable of reducing the amount of source contaminants and reducing the flux of contaminants to groundwater. Green Star will oversee the advancement of approximately 15 Injection wells will be installed in the treatment area on approximate twelve foot centers. The exact location will be determined in the field after underground utilities are located. The injection wells will be screened from approximately 12 to 25 feet below the ground surface. The oxidant will be delivered through a specifically sequenced treatment train. Initially, an aqueous solution containing sodium percarbonate and sodium persulfate will be injected. Next, the treatment area will be subsequently inoculated using Ivey sol™ and hydrogen peroxide aqueous reagent as a Surfactant-Enhanced In-Situ Chemical Oxidation (S-ISCO™) Coelution Technology™. Ivey sol™ is a stabilized surfactant-cosolvent /oxidant combination effective for destruction of source contaminants. This process has demonstrated ability to reduce petroleum hydrocarbons strongly sorbed to soil and sediment. A Total of approximately 10,000-gallons of aqueous reagent is proposed to be injected at the Site over a six day period. Green Star does not intend to collect soil confirmation samples following the ISCO remediation treatment because sufficient soil data from the Site exists to satisfy the SWRCB LTCP except for the Media Specific Criteria for Direct Contact and Outdoor Air which is specifically addressed in Reference Item 9 below.
9		Soil Vapor	On October 20, 2010, four direct-push soil borings (SV-1, SV-2, SV-3a, and SV-3b) were advanced to approximately 5 feet bgs in an effort to collect soil vapor samples using Geoprobe soil vapor apparatus. Only the sample from SV-2 reached a proper final pressure of -5 inches of mercury (Hg). This indicates low permeability soils were present at the sampling depth at borings SV-1, SV-3a, and SV-3b as an adequate volume of soil vapor could not be collected. However, a soil vapor sample was collected at SV-2. Analytical results indicated that benzene, TPH-g, and the four following VOCs were detected above laboratory detection limits: cyclohexane, hexane, 4-methyl-2-pentanone, and 1,2,4-trimethylbenzene. Hexane and 1,2,4-trimethylbenzene are common fuel fractions. Cyclohexane and 4-methyl-2-pentanone, a derivative of acetone, are common laboratory contaminants. Summary tables and figures depicting soil vapor data from the subsurface investigation can be found in Green Star's Revised Site Conceptual Model dated December 22, 2011.	Currently the Site does not meet the LTCP Media Specific Criteria for Direct Contact and Outdoor Air due to a lack of sufficient soil analytical data from the 0-5 foot below ground surface range. Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed remediation work and subsequent confirmation sampling of groundwater and soil at the Site in an effort to remediate suspected contaminant source material still present in soil at the Site and move the Site toward final closure under the SWRCB LTCP. Prior to the initiation of remediation activities, Green Star will collect shallow soil samples for analysis of BTEX, TPH, Naphthalene, and PAHs in an effort to satisfy LTCP Media Specific Criteria for Direct Contact and Outdoor Air.	Green Star is recommending in situ chemical oxidation (ISCO) to treat the remaining impacts to the soils at the Site. The proposed injection will be Surfactant-Enhanced ISCO. The initial phase of ISCO remediation involves the installation of injection wells to treat the Site. To specifically address the SWRCB LTCP Media Specific Criteria for Direct Contact and Outdoor Air, Green Star will obtain shallow soil samples from the 0-5 foot interval and the 5-10 foot interval in the area of current or likely fuel dispensers prior to ISCO remediation activities. Analytical results from the obtained samples will be used to determine if the Site meets the SRWCB LCTP Media Specific Criteria for Direct Contact and Outdoor Air and/or if additional remediation is needed to meet this LTCP.
10	Receptor Survey	Water Well Search	Green Star requested data related to water wells present within at least 0.5-mile of the Site from known regulatory data sources: Alameda County Public Works Agency (ACPWA) and State of California Department of Water Resources (DWR). Both agencies requested the related files remain confidential; therefore, the reviewed data is not included in this report. The records indicated that the vast majority of water wells in the area of the Site are utilized for environmental purposes: monitoring or remediation. A few of the wells were listed for irrigation or domestic use, but none were listed as public supply wells. The non-environmental wells are all located at least 0.4-mile from the Site and none were listed as being downgradient from the Site. No listed well appears to be impacted by or be present in a location that could be impacted in the future by petroleum hydrocarbons related to the Site.	N/A	N/A

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Reference No.	SCM Element	SCM Sub-Element	Description	Data Gap	Proposed Investigation or Work
11	Receptor Survey (Continued)	Area Survey	A walking survey of the Site's area was conducted in 2009 in order to identify unknown, potential receptors or sensitive property uses (residences, water wells, schools, parks, etc.; Figure 9). The survey included an area within at least 500 feet of the Site's property boundary. The area is developed as a dense urban landscape with the majority of the survey area's developments being commercial operations or multi-family residences. No indication of the presence of water wells was observed during the survey. No residences are present within 500 feet downgradient of the Site. Other than residences at upgradient properties, only two sensitive properties were observed. Begin Plaza Park is present northeast of the Site in an up- to cross-gradient location relative to groundwater impacts at the Site. 4C's Child Development Center (4C's) is located approximately 485 feet downgradient of the Site, across Castro Street, I-980 and Brush Street. It should be noted that 4C's is adjacent to the Peerless Stages project site (ACEH LOP facility) and approximately 50 feet from known impacts at Herrington-Olsen Photography (ACEH LOP facility). Impacts related to the Site do not appear to threaten sensitive properties or other potential receptors.	N/A	N/A
12		Vapor Survey	A vapor survey of subsurface conduits at the Site, mainly near the impacted area, was conducted in April 2009. The Site and surrounding streets and right-of-ways were evaluated for the existence of conduits that could allow vapors related to petroleum hydrocarbon impacts at the Site to migrate to the surface or building interiors. Once identified, the atmosphere inside the conduits was screened for VOCs using a photo-ionization detector (PID). The conduits identified included: various manways (sewer, natural gas, and water), storm drains, and floor drains. No VOCs were measured in the conduits' atmospheres. A figure depicting the vapor survey locations and results can be found in Green Star's Revised Site Conceptual Model dated Dedcember 22, 2011.	N/A	N/A
13		Utility/Conduit Survey	A survey of subsurface utilities in the vicinity of the impacts at the Site was conducted in 2009 in order to evaluate the potential for the utilities or related trenches to intercept the impacts or impacted groundwater. Groundwater impacts from the Site extend under Castro Street. Four subsurface utility lines are located under Castro Street: a 24-inch outside diameter (OD) sanitary sewer, an 8-inch inside diameter (ID) gas line, a 12-inch OD storm sewer and an 8-inch ID water line (Figure 2b). None of the utilities under Castro Street intercept the water table. The base of the 24-inch sanitary sewer is closest to the groundwater table at approximately 11.7 feet above msl while groundwater has been present in monitoring well ES-8 at elevations ranging from 5.48 to 9.1 feet above msl. Several utility lines are located on-site near the source area, but the on-site lines are very near the surface and do not intercept or approach the water table.	N/A	N/A
14	Cleanup Goals	N/A	The data indicates that residual groundwater impacts at the Site appear to be present as a result of contact with contaminated soil source material still present at the Site. As previously stated, the Site does not appear to meet the State Water Resources Control Board Low Threat Closure Policy for groundwater likely due to contaminated soil as source material remaining at the Site. The contaminated soil source material appears to continue to impact groundwater at the Site. Therefore, Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed remediation work and subsequent confirmation sampling of groundwater and soil at the Site in an effort to remediate suspected contaminant source material still present in soil at the Site and move the Site toward final closure under the State Water Resources Control Board Low Threat Closure Policy. As the vast majority of the groundwater impacts remain on-site as evidenced by relatively low concentrations of impacts in well ES-8 (40 feet downgradient of the former tankpit) and no indication of actual use of impacted groundwater at off-site properties exists based on a receptor survey, ESLs related to the groundwater ingestion pathway are not appropriate for the project and shallow groundwater beneath the site has no documented beneficial use. Therefore, ESLs for non drinking water resources will be used for the groundwater cleanup standard	N/A	N/A

ACEH = Alameda County Environmental Health SWRCB =State Water Resources Control Board LTCP=Low Threat Closure Policy

Table 2 - Tabular Data Gap Work Plan
Oakland Bus Terminal
2103 San Pablo Avenue
Oakland, Alameda County, California
Green Star Project No. 14-1379

Reference No.	Data Gap	Proposed Investigation of Work	Rationale	Analysis
7	Current data from groundwater at the Site is inconclusive in determining the trend of dissolved-phased contaminants at the Site as well as the downgradient extent of the plume. The Site does not appear to meet the State Water Resources Control Board Low Threat Closure Policy likely due to contaminated soil as secondary source material in contact with groundwater remaining at the Site. Therefore, Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed remediation work and subsequent confirmation sampling of groundwater and soil at the Site in an effort to remediate suspected contaminant source material still present in soil at the Site and move the Site toward final closure under the State Water Resources Control Board Low Threat Closure Policy.	Green Star is recommending in situ chemical oxidation (ISCO) to treat the remaining impacts to the soils at the Site. The proposed injection will be Surfactant-Enhanced ISCO. Green Star will oversee the advancement of approximately 10 Injection wells to be installed in the treatment area on approximate 15-foot centers. The exact location will be determined in the field after underground utilities are located. The injection wells will be screened from approximately 12 to 25 feet below the ground surface. Figures depicting the proposed injection well locations and a general schematic of injection well construction are attached to this Data Gap Investigation Work Plan as Figures 1 and 2 respectively. The oxidant will be delivered through a specifically sequenced treatment train. Initially, an aqueous solution containing sodium percarbonate and sodium persulfate will be injected. Next, the treatment area will be subsequently inoculated using Ivey sol™ and hydrogen peroxide aqueous reagent as a Surfactant-Enhanced In-Situ Chemical Oxidation (S-ISCO™) Coelution Technology™. Ivey sol™ is a stabilized surfactant-cosolvent /oxidant combination effective for destruction of source contaminants. This process has demonstrated ability to reduce petroleum hydrocarbons strongly sorbed to soil and sediment. A total of approximately 10,000-gallons of aqueous reagent is proposed to be injected at the Site over a six day period. Following ISCO remediation activities, Green Star will obtain groundwater confirmation samples to evaluate the ISCO remediation treatment effectiveness. Green Star does not intend to collect soil confirmation samples following the ISCO remediation treatment because sufficient soil data from the Site exists to satisfy the SWRCB LTCP except for the Media Specific Criteria for Direct Contact and Outdoor Air which is specifically addressed in Reference Item 9 below.	Green Star believes treatment of the residual impacts observed in soils at the Site will be effective in reducing the concentrations of observed contaminants present in groundwater at the Site. Treatment of the impacts soils at the Site and overall reduction of the concentrations of contaminants at the Site will also serve to stabilize or reduce the impacted groundwater plume at and downgradient of the site.	Following ISCO remediation activities at the Site, Green Star proposes to conduct one year of post treatment quarterly groundwater monitoring events at the Site to monitor the effectiveness of the ISCO remediation treatment. Following ISCO Remediation groundwater will be analyzed for: -VOCs to include BTEX, Naphthalene, MTBE, ETBE, TAME, DIPE, EDC, EDB, TBA, and Ethanol via EPA 8260 -Total Petroleum Hydrocarbons (TPH) for gasoline, diesel, and oil range via EPA 8015 -The sample with the highest TPH diesel range result will be analyzed for Poly-aromatic hydrocarbons (PAH) via EPA 8270
8	Impacted soils appear to still be present at the Site and are the likely cause of the observed groundwater impacts noted in the previous section. The Site does not appear to meet the SWRCB LTCP likely due to contaminated soil as secondary source material remaining at the Site. Therefore, Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed remediation work and subsequent confirmation sampling of groundwater and soil at the Site in an effort to remediate suspected contaminant source material still present in soil at the Site and move the Site toward final closure under the SWRCB LTCP.		Green Star Believes that surfactant-enhanced ISCO is the most viable and effective treatment option for the site based on the current conditions at the Site. Because the Site is an active bus terminal and the location of impacted soils at the Site relative to existing structures and utilities, other remediation options such as excavation of the impacted soils is not practical. Additionally, surfactant-enhanced ISCO is a field verified technology used by Green Star capable of reducing the amount of source contaminants and reducing the flux of contaminants to groundwater.	N/A

Table 2 - Tabular Data Gap Work Plan
Oakland Bus Terminal
2103 San Pablo Avenue
Oakland, Alameda County, California
Green Star Project No. 14-1379

Reference No.	Data Gap	Proposed Investigation of Work	Rationale	Analysis
9	Currently the Site does not meet the LTCP Media Specific Criteria for Direct Contact and Outdoor Air due to a lack of sufficient soil analytical data from the 0-5 foot below ground surface range. Green Star is submitting a Data Gap Investigation Work Plan concurrent to this SCM which outlines additional proposed remediation work and subsequent confirmation sampling of groundwater and soil at the Site in an effort to remediate suspected contaminant source material still present in soil at the Site and move the Site toward final closure under the SWRCB LTCP. Prior to the initiation of remediation activities, Green Star will collect shallow soil samples for analysis of BTEX, TPH, Naphthalene, and PAHs in an effort to satisfy LTCP Media Specific Criteria for Direct Contact and Outdoor Air.	Green Star is recommending in situ chemical oxidation (ISCO) to treat the remaining impacts to the soils at the Site. The proposed injection will be Surfactant-Enhanced ISCO. The initial phase of ISCO remediation involves the installation of injection wells to treat the Site. To specifically address the SWRCB LTCP Media Specific Criteria for Direct Contact and Outdoor Air, Green Star will obtain shallow soil samples from the 0-5 foot interval and the 5-10 foot interval in the area of current or likely fuel dispensers prior to ISCO remediation activities. Analytical results from the obtained samples will be used to determine if the Site meets the SRWCB LCTP Media Specific Criteria for Direct Contact and Outdoor Air and/or if additional remediation is needed to meet this LTCP.	N/A	Prior to ISCO remediation activities at the Site, Green Star proposes to collect soil samples near the location of current or likely fuel dispensers at the Site from the shallow 0-5 and 5-10 foot below surface ranges to determine if the Site satisfies the SWRCB LTCP Media Specific Criteria for Direct Contact and Outdoor Air. Soil samples will be analyzed for: -BTEX and Naphthalene via EPA 8260 -Total Petroleum Hydrocarbons (TPH) for gasoline, diesel, and oil range via EPA 8015 -Poly-aromatic hydrocarbons (PAH) via EPA 8270

ACEH = Alameda County Environmental Health SWRCB =State Water Resources Control Board LTCP=Low Threat Closure Policy

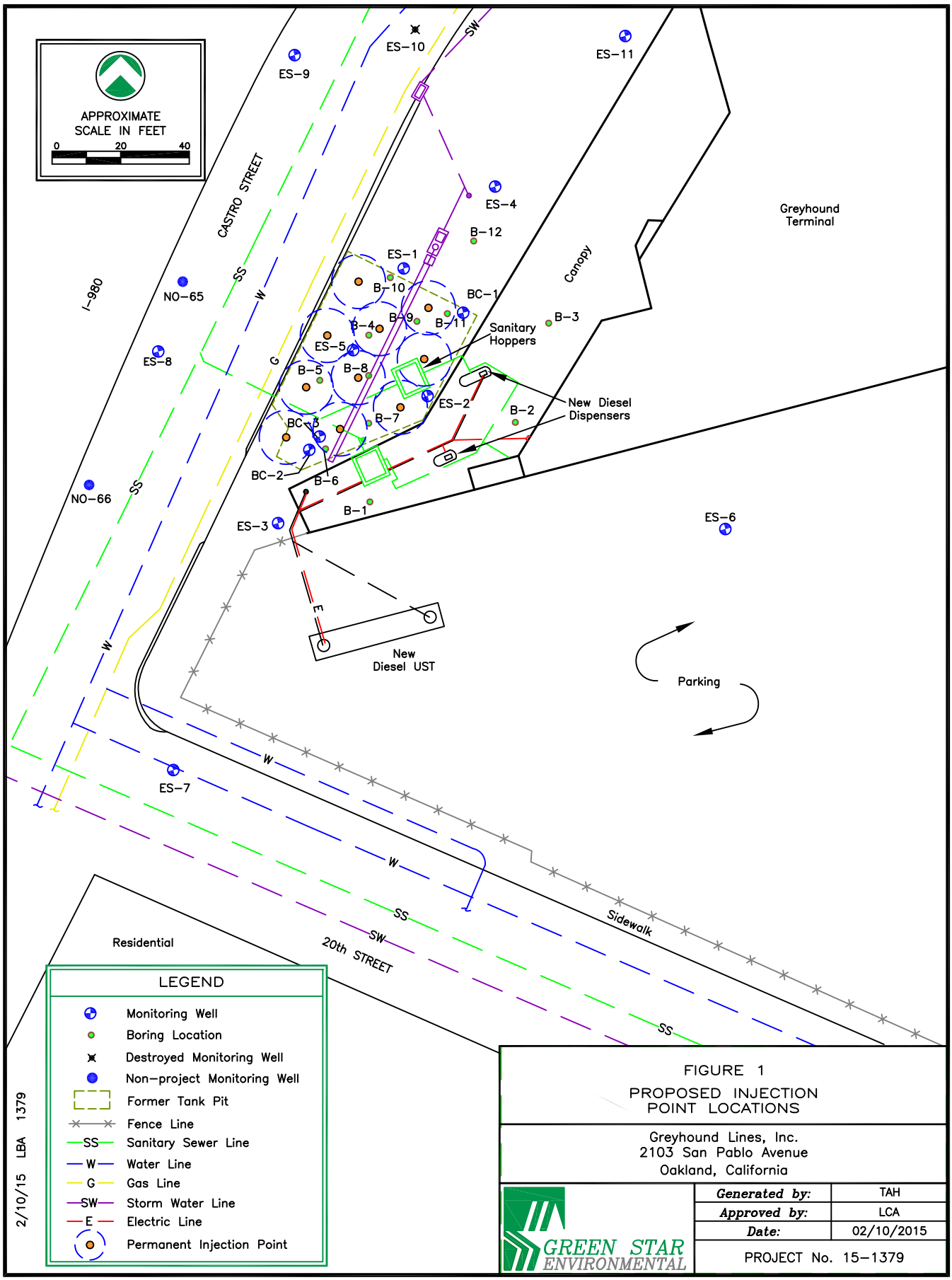

FIGURE 1

PROPOSED INJECTION POINT LOCATIONS

Greyhound Lines, Inc.
2103 San Pablo Avenue
Oakland, California

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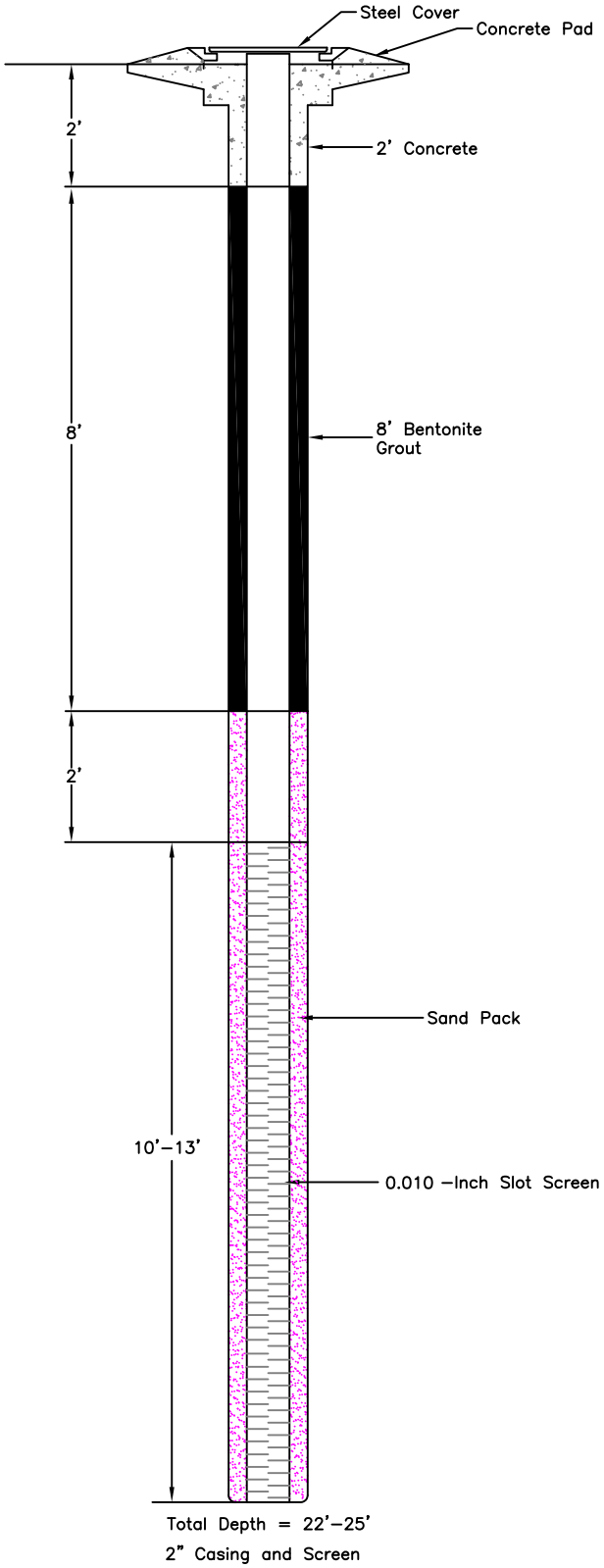

GREEN STAR ENVIRONMENTAL

GREYHOUND LINES, INC.
2103 SAN PABLO AVENUE
OAKLAND, CALIFORNIA

FIGURE 2
CONSTRUCTION DETAIL FOR SOIL BORING CONVERTED TO INJECTION POINT

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