

**FINAL
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION**

**MONTEREY-SALINAS TRANSIT
MONTEREY BAY OPERATIONS AND MAINTENANCE FACILITY
RENOVATION AND EXPANSION PROJECT**

SCH #2015051004

PREPARED BY:



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July 6, 2015

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1.0 INTRODUCTION

1.1 Background

This document, together with the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND), constitutes the Final Initial Study/Mitigated Negative Declaration (Final IS/MND) for the Monterey-Salinas Transit (MST) Monterey Bay Operations and Maintenance Facility Renovation and Expansion Project (Project). The Final IS/MND consists of an introduction, comment letters received during the 30-day public review period, responses to comments, and revisions to the Draft IS/MND, if deemed applicable. MST is the lead agency for the Project.

The MST Monterey Bay OMF Renovation and Expansion Project consists of an efficiency upgrade and includes renovating and expanding its existing administrative and bus facility building near Ryan Ranch in the City of Monterey. The Project would relocate administrative staff and expand the existing facility for bus repair and maintenance, drivers, and operations staff.

The Project consists of an efficiency upgrade by designing a new OMF capable of maintaining and dispatching 85 to 90 buses including associated driver operations and maintenance spaces. Through a feasibility study conducted in 2013, it was determined that an expanded facility in the current location will best meet this target. MST has been able to fulfill their requirements to maximize the capacity of the Ryan Ranch property through site improvements, building expansion, and bus parking expansion and densification. MST intends to reconfigure the existing facility to focus on operations and will relocate most of their management and administrative functions offsite, to an already developed location soon to be determined.

The expanded facilities would provide for the maintenance, drivers, and daily operations of the MST public transportation system. The following facilities would be included as part of the Project: an Operations and Maintenance Facility; a Fuel/Service Canopy; and a Bus Wash Facility. Additionally, the design of the facilities will include the replacement and/or improvements and extensions to existing utilities to meet project needs and code requirements.

As described above, the existing facility is operating over its design capacity and is unable to maintain and store a number of the buses which have routes on the Monterey Peninsula. As a result, many buses with Monterey Peninsula routes must be staged out of the Salinas yard. The purpose of the Project is to provide for the maintenance, drivers, and daily operations of MST public transportation to accommodate service demands on the Monterey Peninsula area and beyond.

The primary project objective is to expand and renovate the existing OMF facility to accommodate an increased bus fleet and to expand and modernize the maintenance services capabilities. The project approach, design, and implementation must align with MST guiding principles.

The Draft IS/MND was prepared to inform the public of the potential environmental effects of the Project and identify possible ways to minimize project-related impacts.

1.2 Public Participation

Pursuant to CEQA Guidelines Section 15073(a), the proposed Draft IS/MND was circulated for a 30-day review period during which comments were received. In accordance with CEQA, this document is included in the official public record for the Initial Study. On May 1, 2015, the Draft IS/MND was distributed for the extended public review period to responsible and trustee agencies, interested groups, and individuals. The review period ended on June 1, 2015. In addition, the project was presented at the City of Monterey (City) Planning Commission on May 26, 2015, for conceptual review. The City's staff report and associated comments on the project are included as "**Letter C.**"

2.0 RESPONSE TO COMMENTS

2.1 Introduction

This section provides responses to comments on the Draft IS/MND. This section contains all information available in the public record related to the Draft IS/MND as of June 30, 2015, and responds to comments received during the review period.

2.2 List of Comment Letters

The following is a list of comment letters received on the Draft IS/MND and the dates they were received:

State Agencies

Date

Letter A. State of California, Governor's Office of Planning and Research, State Clearinghouse and Planning Unit June 2, 2015

Regional and Local Agencies

Date

Letter B. Monterey Bay Unified Air Pollution Control District..... June 13, 2015

Letter C. City of Monterey, Planning Commission Agenda Report May 26, 2015

Letter D. Monterey Peninsula Water Management District May 28, 2015

2.3 Response to Comments

Each letter received on the Draft IS/MND is presented in this chapter, as identified in Section 2.2 above. Individual comments in each letter are numbered. Correspondingly numbered responses to each comment are provided in the discussion following the comment letter.

If comments raised environmental issues that required additions or deletions to the text, tables, or figures in the Draft IS/MND, a brief description of the change is provided and the reader is directed to Section 3.0, Revisions to the Draft IS/MND. The comments received on the Draft IS/MND did not result in a "substantial revision" of the mitigated negative declaration, as defined by CEQA Guidelines Section 15073.5, and the new information added to the mitigated negative declaration merely clarifies, amplifies, or makes insignificant modifications to the Draft IS/MND. No new, avoidable significant effects were identified since the commencement of the public review period that would require mitigation measures or project revisions to be added in order to reduce the effects to insignificant.

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Edmund G. Brown Jr.
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Ken Alex
Director

June 2, 2015

Lisa Rheinheimer
Monterey Salinas Transit
One Ryan Ranch Road
Monterey, CA 93940

Subject: Monterey Bay Operations and Maintenance Facility Renovation and Expansion Project
SCH#: 2015051004

Dear Lisa Rheinheimer:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on June 1, 2015, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

A-1

**Document Details Report
State Clearinghouse Data Base**

SCH# 2015051004
Project Title Monterey Bay Operations and Maintenance Facility Renovation and Expansion Project
Lead Agency Monterey-Salinas Transit

Type MND Mitigated Negative Declaration
Description The Proposed Project intends to improve the efficiency of the existing MST Monterey Bay OMF property through site improvements and building and bus parking expansion. The Proposed Project would reconfigure the existing facility to focus on operations and maintenance and would relocate most of their management and administrative functions off-site.

Lead Agency Contact

Name Lisa Rheinheimer
Agency Monterey Salinas Transit
Phone 831 393 8124 **Fax**
email
Address One Ryan Ranch Road
City Monterey **State** CA **Zip** 93940

Project Location

County Monterey
City Monterey
Region
Lat / Long 36° 35' 5.79" N / 121° 49' 41.99" W
Cross Streets Ryan Ranch Rd and Canyon Del Rey Blvd (SR 218)
Parcel No. 259-011-067
Township **Range** **Section** **Base**

Proximity to:

Highways SR 218
Airports Monterey Regional Airport
Railways No
Waterways Canyon Del Rey Creek
Schools No
Land Use Industrial / Planned Community

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 4; Department of Parks and Recreation; Department of Water Resources; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 5; Air Resources Board; Regional Water Quality Control Board, Region 3; Native American Heritage Commission

Date Received 05/01/2015 **Start of Review** 05/01/2015 **End of Review** 06/01/2015

LETTER A: State of California, Governor's Office of Planning and Research, State Clearinghouse and Planning Unit

A-1: Comment letter states that the public review period closed on June 1, 2015, and no state agencies submitted comment letters by that date.



MBUAPCD

Monterey Bay Unified Air Pollution Control District
Serving Monterey, San Benito, and Santa Cruz Counties

Letter B

24580 Silver Cloud Court
Monterey, CA 93940

PHONE: (831) 647-9411 • FAX: (831) 647-8501

May 13, 2015

Lisa Rheinheimer, Director of Planning and Development
Monterey-Salinas Transit
One Ryan Ranch Road
Monterey, CA 93940

Email: lrheinheimer@mst.org

SUBJECT: MST Operations and Maintenance Facility Renovation and Expansion Project Mitigated
Negative Declaration

Dear Ms. Rheinheimer:

Thank you for providing the Monterey Bay Unified Air Pollution Control District (Air District) with the opportunity to comment on the above-referenced document. The Air District has reviewed the document and has no comments.

B-1

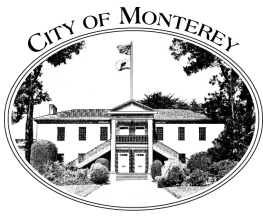
Please let me know if you have questions, I can be reached at aclymo@mbuapcd.org.

Best regards,

Amy Clymo
Supervising Air Quality Planner
(831) 647-9411

LETTER B: Monterey Bay Unified Air Pollution Control District

B-1: Comment letter states that the MBUAPCD has reviewed the Draft IS/MND and has no comments.



Planning Commission Agenda Report

FROM: Kimberly Cole, AICP, Principal Planner

SUBJECT: Consider 1 Ryan Ranch Road; Concept Review of Improvements to an Existing Operations and Maintenance Facility for Monterey Salinas Transit; Applicant/Owner Monterey-Salinas Transit; PC (Planned Community) Zoning District; Exempt from CEQA

RECOMMENDATION:

That the Planning Commission consider the proposed improvements to an existing Operations and Maintenance Facility for Monterey Salinas Transit and provide preliminary comments on the project's compliance with City regulations and possible environmental impacts.

ENVIRONMENTAL DETERMINATION:

Monterey Salinas Transit (MST) has prepared a draft Initial Study/Mitigated Negative Declaration for the proposed project. MST is the lead agency, and the City of Monterey is a responsible agency. Public comments are due by June 1, 2015. A copy of the Initial Study is provided as Attachment 2.

DISCUSSION:

Background

The project site is located at 1 Ryan Ranch Road. The site has a General Plan designation of Industrial and is zoned Planned Community.



Project Site

The City issued a Use Permit for MST to locate at this site in 1975. This permit was amended many times over the years as the facility and services expanded. The applicant (MST) will ultimately need to file an application to amend the existing planned community plan and use

permit for City review and approval. The project will also require a tree removal permit. (See staff comments #4 and #5 below regarding acquisition of City land – if land is acquired the project will also require a lot line adjustment.)

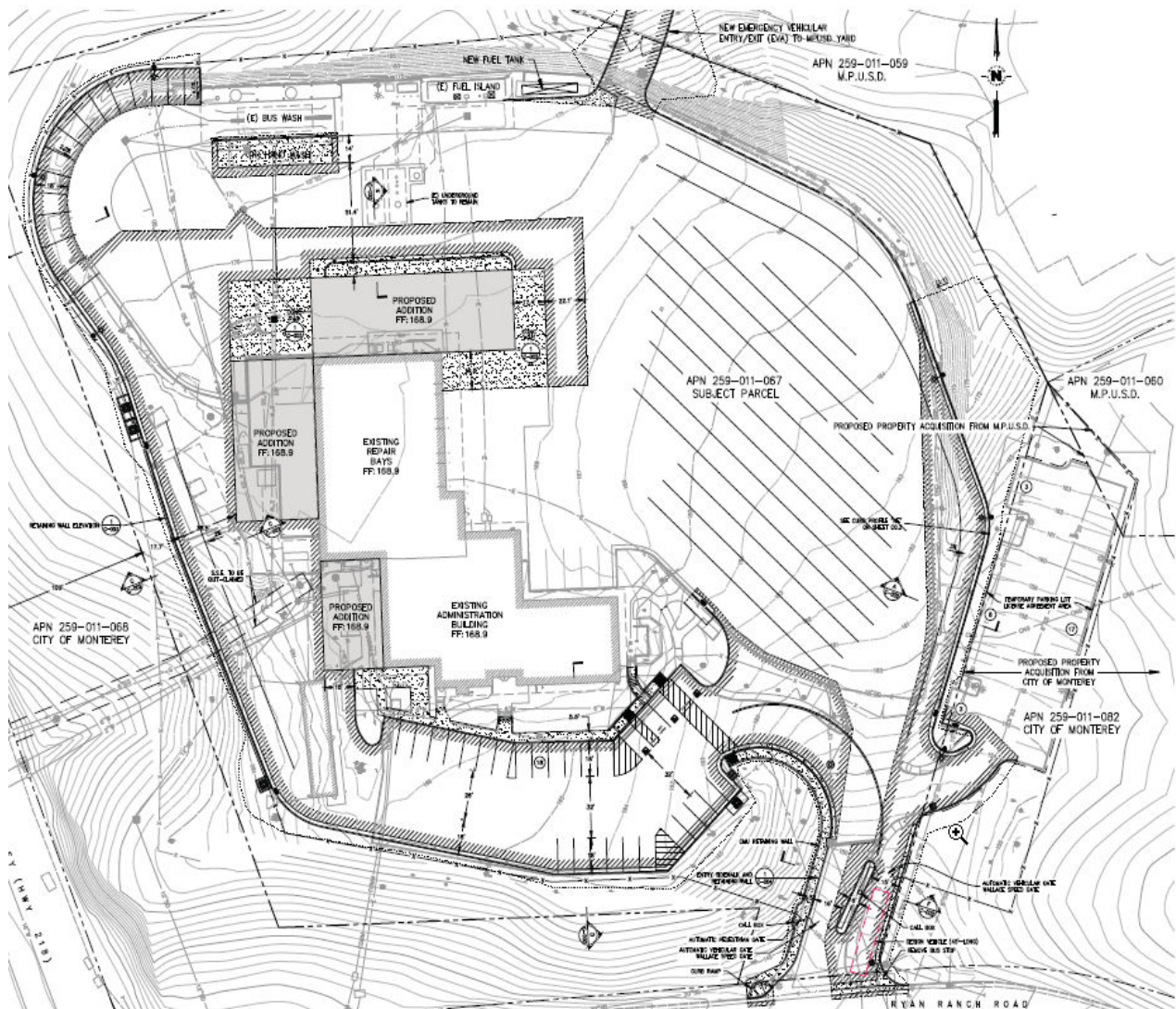
Project Description

The applicant has requested concept review of the proposed project prior to formal submittal to the City. The proposed project's objective is to expand and renovate the existing Operations and Maintenance Facility (OMF) to accommodate an increased bus fleet and to expand and modernize the maintenance service capabilities.

The project includes:

1. Renovated Operations and Maintenance Facility (OMF) Building: The existing 7,667 square foot OMF building would be renovated into a 31,604 square foot, two-story building which would include services for drivers, mechanics, and equipment related to bus maintenance. The renovated facility would be capable of maintaining 85 to 90 buses of varying sizes and types including vendor vehicles which have been serviced off site due to lack of on-site facilities. The expanded building would include nine total bus repair and maintenance bays including three renovated service bays and one restored service bay, three new service bays, a tire service bay with tire storage and a steam clean bay;
2. Expanded Fuel/Service Canopy/Fuel Island: The existing 1,250 square foot Fuel/Service Canopy would be expanded by 650 square feet for a total of 1,900 square feet. The existing canopy would be extended to cover an added second service lane resulting in a total of two, side-by-side covered service lanes with fuel dispensers.
3. Renovated and Expanded Bus Wash Facility: The existing 2,237 square foot bus wash facility would be expanded by 931 square feet for a total of 3,308 square feet.
4. Landscape, Tree Removal and Irrigation: There are approximately 59 trees that require removal to accommodate the building expansion, circulation changes and required grading.
5. Utilities: Various utility upgrades will need to occur to accommodate the expanded building.
6. Site Fencing: The existing site fencing will be replaced.

A complete project description is provided in Attachment 2.



Analysis

An expanded bus facility at this site will help maintain and improve bus service to the Monterey Peninsula. Bus service is an important aspect of Monterey's existing and future circulation plans.

The City's technical staff offers the following comments:

1. The project is required to retain, treat and control peak stormwater flows. The proposed storm water plans need to be revised to comply with the City's regulations. The plan should specifically consider additional low impact design features to meet the necessary requirements. There appears to be ample site area to accommodate these features onsite.
2. There are 57 trees proposed for removal. The majority of these trees are healthy but their removal is needed to facilitate bus access around the facility. Due the tree removals and impact on vegetation, staff recommends that the stormwater control plan

C-1

C-2

provide further low impact development features to help compensate for the loss of trees. Additional native trees should be proposed to offset this loss.

C-2
Con't

The City Forester indicates if the trees removals are approved that the removal should avoid the avian nesting periods.

3. The project proposes some grading and new impervious surfaces on areas that exceed 25% slope. The applicant needs to provide further justification for the proposed grading on areas with 25% slope. Staff still has questions why the area adjacent to the parking lot needs to be graded.

The City's General Plan states - Prohibit new development on slopes over 25% grade on existing lots of record and only allow minimal encroachment into 25% or greater slope as determined by the Planning Commission. Discourage and only consider such development when it is designed and located to minimize impacts to adjoining property and public right-of-way that could occur due to inadequate grading and drainage control, visual appearance and removal of trees and vegetation. The Planning Commission shall determine that the amount and location of 25% slope area so severely restricts the development potential of the lot that prohibiting development on 25% slope deprives such property of privileges enjoyed by other similar property that an exception to this prohibition is warranted.

C-3

4. Based on recent discussions with MST staff, it is the City's understanding that this project does not propose to purchase the portion of the lot currently developed with a parking lot on City property. A license agreement currently governs this area. The project plans need to be amended to remove the proposed acquisition notes. The Draft IS/MND should also remove any reference to land acquisition if it is not proposed.

C-4

5. It is also the City staff understanding that the MST does not plan to acquire the portion of the site currently owned by MPUSD. If this is accurate, the plans should be modified to eliminate this reference. It is also important to note that the portion of the parking lot and undeveloped land that currently shows as proposed for transfer from the Monterey Peninsula Unified School District (MPUSD) to MST is located in the City of Del Rey Oaks.

C-5

6. The City Fire Department requires details on the proposed fuel tank. Specifications are needed regarding size, capacity and clarification if the tanks are below or above ground. Current rules require below grade storage.

C-6

7. The City Traffic Division requests that the site plan be revised to show a pedestrian path of travel from the portion of the parking lot on City property to the facility. More emphasis is needed to resolve possible pedestrian access around the back of the building near the proposed additions. Safeguards should be added for pedestrians.

C-7

8. MST must provide approval from the Monterey Peninsula Water Management District on its approach for water calculations.

C-8

9. As indicated in the Draft IS/MND, the project site is located in an area of high archaeological sensitivity. An Archaeological Reconnaissance Survey needs to be prepared to support the Draft IS/MND conclusions. If the site is negative for cultural resources, standard condition language includes:

If archaeological materials or features are discovered at any time during construction, excavation shall be halted within 50 meters (150 feet) of the find until it can be evaluated by a qualified professional archaeologist (defined as one who is certified by the Society of Professional Archaeologists). If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented. If human remains are discovered at any time during construction, work shall be halted within 50 meters (150 feet) of the find. The contractor shall call the Monterey County Coroner and await the Coroner's clearance. If the coroner determines the remains are Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours. NAHC shall notify the most likely descendent. The Native American descendent, with permission of the land owner or representative, may inspect the site of the discovery and recommend the means for treating or disposing with appropriate dignity the human remains and any associated grave goods. The Native American descent shall complete their inspection and make their recommendation within 24 hours of their notification by the Native American Heritage Commission. The recommendation may include the removal and analysis of human remains and associated items; preservation of the Native American human remains and associated items in place; relinquishment of Native American human remains and associated items to the descendants for treatment; other culturally appropriate treatment. If the NAHC is unable to identify a descendent or the descendent identified fails to make a recommendation within 24 hours, the landowner shall reinter the human remains and items associated with the Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance. If the landowner and Native American descendent reach agreement on the appropriate procedure, the landowner shall follow this procedure. If the landowner and Native American descent cannot reach agreement, the parties shall consult with the Native American Heritage Commission. The landowner shall consider and if agreeable follow the identified procedure. If the landowner and Native American descendant cannot reach agreement after consultation, the Native American human remains shall be reinterred on the property with appropriate dignity. All procedures described in California Government Code Section 65352 shall apply.

C-9

10. As indicated in the EIR, the project requires a consistency determination from the Monterey Airport Land Use Commission prior to project consideration by the City of Monterey.

C-10

11. The project approvals will require an update to the site's Planned Community Plan.

C-11

In conclusion, staff recommends that the Planning Commission consider the proposed improvements to an existing Operations and Maintenance Facility for Monterey Salinas Transit and provide preliminary comments on the project's compliance with City regulations and possible environmental impacts.

Attachments: 1. Project Plans
 2. Draft Initial Study and Mitigated Negative Declaration

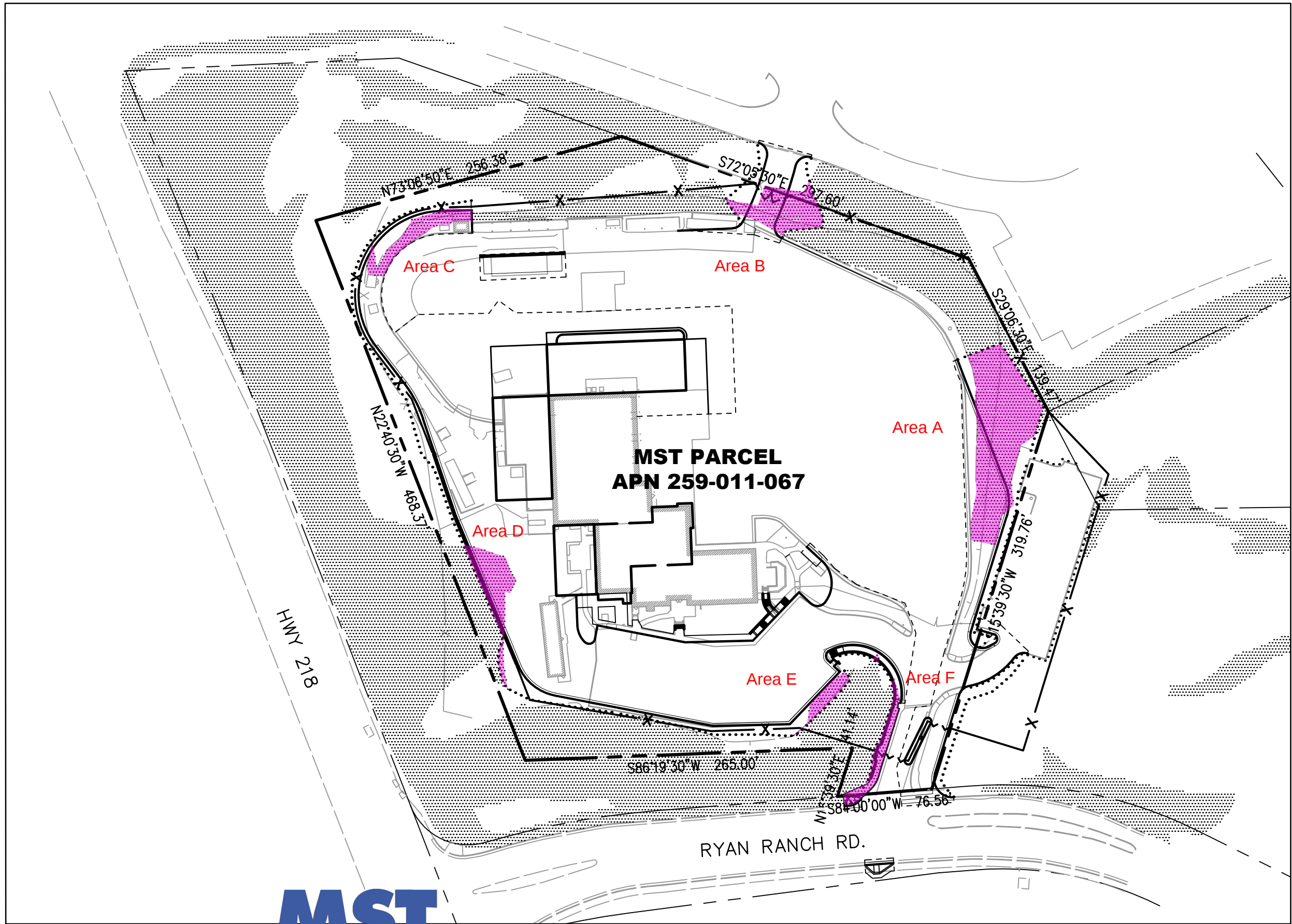
e: Lisa Rheinheimer, MST
 Carl Sedoryk, CEO/General Manager, MST
 Dan Albert, Monterey Peninsula Unified School District

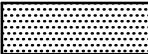
LETTER C: City of Monterey, Planning Commission Agenda Report

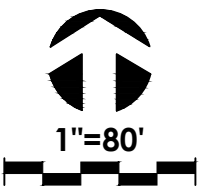
- C-1:** The Proposed Project's Preliminary Stormwater Control Plan (SWCP) has been revised to provide the required on-site retention volume by up-sizing the site's underground retention/detention structure (please refer to **Appendix A** of this document). Therefore, the Proposed Project is now in compliance with all the requirements in the Regional Permit and the City's stormwater guidance documents.
- C-2:** The revised Preliminary SWCP has been updated to minimize runoff impacts resulting from project implementation, including the tree and vegetation removal required. Figure 4, Landscaping Plan and Legend, of the Draft IS/MND identifies the proposed revegetation and tree plantings to reduce potential erosion and runoff at the site. In addition, the Proposed Project will be required to obtain a tree removal permit from the City, which may require additional plantings. Mitigation Measure 4 of the Draft IS/MND requires pre-construction surveys for protected nesting avian species if any approved tree removal cannot be timed to avoid the breeding and nesting season.
- C-3:** MST will be requesting in their project application that the City Planning Commission allow the Proposed Project to grade on areas of 25% slopes in order to:
1. Increase the bus yard footprint to accommodate the proposed bus fleet, which will be operated out of, and parked on, the site (Areas A and C; please refer to the Slope Map on the following page for area locations);
 2. Construct an emergency vehicle access between the MST and MPUSD parcels (Area B; please refer to the Slope Map on the following page);
 3. Provide bus circulation through the building (pull-through bays) and around the west side of the building, so that a counter-clockwise circulation pattern can be used on the site (Area D); and
 4. Provide pedestrian access from the public way (Ryan Ranch Road) to the building entrance, as required by the Building Code (Areas E and F).

If the City were to require the Proposed Project to reduce the proposed encroachment onto 25% slope areas, it would result in the following ramifications:

1. Area A: eliminate the proposed bus yard expansion at this location. Approximately 7 fewer buses would be able to park on site, which would significantly reduce the project's ability to achieve its purpose.
2. Area B: eliminate the emergency vehicle access between the MST and MPUSD sites. The emergency vehicle access is considered an important safety improvement for both the MST and MPUSD sites.



-  25% OR GREATER EXISTING SLOPE
-  ENCROACHMENT ONTO AREA OF 25% OR GREATER EXISTING SLOPE



SLOPE MAP



3. Area C: eliminate the proposed bus yard expansion at this location. Approximately 10 fewer support (passenger) vehicles would be able to park on site, which would significantly reduce the project's ability to achieve its purpose.
4. Area D: eliminate the proposed bus yard expansion on the west side of the building. Approximately 20 fewer buses would be able to park on site, four repair bays which are proposed to be pull-through would not be able to be pull-through, and the proposed counter-clockwise bus circulation pattern would be eliminated. This would significantly reduce the project's ability to achieve its purpose.
5. Areas E and F: eliminate the required pedestrian path of travel from the public way. A path of travel will need to be provided, therefore, it is not anticipated that elimination of this encroachment would be possible, without creating other significant site design impacts, which would significantly reduce the project's ability to achieve its purpose.

Also, please note that, with the exception of encroachment Area D, the proposed encroachments are onto man-made cut and fill slopes, not naturally-occurring 25% slope areas.

- C-4:** Comment noted. As a clarification, MST is not proposing to acquire the City of Monterey-owned parking lot area as a part of the Proposed Project. References to property acquisition have been removed from the site plans and the IS/MND.
- C-5:** Comment noted. As a clarification, MST is not proposing to acquire the portion of the parking lot area owned by the MPUSD. References to property acquisition have been removed from the site plans and the IS/MND. MST is seeking to lease the parking lot area currently owned by the MPUSD.
- C-6:** MST will work closely with the Monterey Fire Department to ensure that the City approves the fuel tank placement and design. Working with the Fire Department, MST will request an ordinance exemption for the placement of the fuel tank to be aboveground. The aboveground fuel tank would not be visible from Ryan Ranch Road and, therefore, does not impact the visual experience of those using Ryan Ranch Road. Additionally, the Proposed Project is in an area where other aboveground fuel tanks exist, including at the Monterey Airport.
- C-7:** The bulb-out has been added at the southwest corner of the existing employee parking lot in order to minimize the length that pedestrians must travel to cross the entry drive. In addition, a sidewalk has been added in the bulb-out along with a striped crosswalk across the entry drive to encourage pedestrians to cross at the preferred location. Please refer to plan sheet C-SD101 in **Appendix B**.

A 6'-wide sidewalk has been added along the west face of the Parts Room, in order to keep buses exiting the Tire Shop from driving too close to the southwest corner of the Parts Room. Due to the very limited width available at the southwest corner of the Steam Clean Bay, openings have been added at the corner in order to provide line-of-sight

through the building. Please refer to plan sheets A-1-SD101 and C-SD101 in **Appendix B**.

- C-8:** Comment noted. MST will be required to obtain a Water Permit from the Monterey Peninsula Water Management District (MPWMD). Please see responses to **Letter D**.
- C-9:** In response to this comment, MST contracted AECOM to complete an Archaeological Reconnaissance Survey Report. No cultural resources were identified within or adjacent to the MST project area as a result of the survey effort or background research. Due to the sensitivity of the resources in the project vicinity identified in the report, the report is not available for public distribution. Mitigation Measures 7 and 8 of the Draft IS/MND are consistent with the City's standard conditions language contained in the Staff Report.
- C-10:** Comment noted. The Proposed Project was reviewed at the Monterey Airport Land Use Commission meeting on June 22 2015. The Commission deemed the Proposed Project consistent with the 1987 Comprehensive Land Use Plan. The conditions of approval require MST to grant an aviation easement to the Airport and also require lighting to be downward-facing and approved by the Airport.
- C-11:** Comment noted. MST will provide the City a proposed update to the site's Planned Community Plan prior to requesting Planning Commission consideration of an Amendment to the Use Permit.



May 28, 2015

Ms. Lisa Rheinheimer, Director of Planning and Development
 Monterey-Salinas Transit
 One Ryan Ranch Road
 Monterey, California 93940

**Subject: Draft Initial Study/Mitigated Negative Declaration for One Ryan Ranch Road,
 Monterey – Monterey-Salinas Transit (APN: 259-011-067)**

Dear Ms. Rheinheimer:

The Monterey Peninsula Water Management District (District or MPWMD) appreciates the opportunity to comment on the Monterey-Salinas Transit's Draft Initial Study/Mitigated Negative Declaration for One Ryan Ranch Road, Monterey. The project is described as a renovation and expansion project. The project proposes to expand the existing 16,200 square-foot Operations and Maintenance Facility (OMF) building to 31,604 square-feet and the bus wash facility will also be renovated and expanded by 931 square-feet. The Initial Study states that the overall Site water usage is anticipated to be reduced by replacing the existing mechanical systems with systems at least as efficient as the current systems, and adjusting the steam cleaning and bus washing frequency. The District's comments below apply to discussion in Section I – Hydrology and Water Quality. The District is submitting these comments based on current rules and policies which are subject to revision by action of the Board of Directors.

Water Permit Requirement

A Water Permit from MPWMD is required for this project. Section 2.7 of the Initial Study, *Project Approvals and Permits Required*, does not include MPWMD as a permitting agency. District Rule 20, *Permits Required*, states that "Any Change of Use or any expansion of a Non-Residential use requires a Water Permit." The expansion of square-footage to the OMF Building requires issuance of a Water Permit by MPWMD. The Non-Residential water factor for Office/Warehouse use is found in District Rule 24, Table 2, *Non-Residential Water Factors*. The current water factor for this use is 0.00007 Acre-Feet Annually (AFA) per square-foot. Using this water factor, the 15,404 square-foot expansion has a water use capacity of 1.080 AFA. A Water Permit will be required prior to undertaking this project. Prior to issuance of a building permit, a final review of the demand projection will take place. ***Water Permits will be issued for the project if sufficient water is available.***

Water Permit applications are processed in accordance with MPWMD Rules and Regulations. Current MPWMD Rules and Regulations are available at the following website: www.mpwmd.net. All Non-Residential users must comply with MPWMD's extensive water conservation and water efficiency standards (Regulation XIV, Water Conservation and

D-1

Regulation XV, Expanded Water Conservation and Standby Rationing Plan). Monterey-Salinas Transit is subject to these rules and regulations prior to issuance of a Water Permit.

D-1
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Actual Water Use and Quantity of Water Proposed To Be Used

Inadequate and/or inaccurate information is contained in this Initial Study to support the stated annual water use of 2.61 AFA or to support the offset of added demand by implementation of conservation measures. Much of the discussion in Tables 8 and 9 requires additional information to support a quantification of actual water use. Table 9 on page 62 of the Initial Study, titled "Existing and Proposed Site Water Demand Estimate," lists water use under the headings "Existing Demand (AFY)" and "Proposed Demand (AFY)," proposing project water use for each of the following categories: Interior (Domestic) Use, Exterior (Irrigation) Use, bus wash, and steam rack. The documentation supporting these estimates of uses is not provided and there is no explanation of whether the facilities on Site have water efficient devices. For example, the type of water fixtures, e.g., toilets, urinals, and types of steam cleaning and bus washing equipment, type of irrigation systems, and related details are needed to determine potential water credit associated with domestic uses. Quantification of bus washing and the basis for the estimated uses by buses is needed to determine consumption at the bus wash and steam rack. Sub-meters were installed at the steam rack and the line feeding the bus wash in August 2013, but there is no information on the number of uses or on the basis for the irrigation demand provided. Furthermore, the readings for the bus wash included a period of approximately four months, not to date.

D-2

Based on the information in Table 9, irrigation water use will decrease by approximately 0.12 Acre-Feet Annually (AFA) from the removal of existing lawn area and replacing it with low-water use landscaping. District Rule 25.5.3.b states, "***Credit shall not be given for any reduction which occurs as the result of the removal of Landscaping installed without a Water Permit or installed pursuant to a Water Permit for New Construction.***" The District will not grant a Water Credit for the removal of the landscape area because no Water Permits were issued for the original installation.

Many questions arise regarding the existing uses and practices at the MS Transit Site. Based on the information presented in the Initial Study, MPWMD cannot determine if the values shown in Table 9 are accurate. The water demand estimates on Table 9 of the Initial Study cannot be independently verified without supporting information. ***A Site inspection will need to be performed by MPWMD to verify compliance with the Water Efficiency Standards pursuant to District Rule 143. MPWMD must be contacted immediately for a Site inspection by calling the Permits and Conservation Office at 658-5601. It is a critical step to confirm the existing uses and water efficiency devices before MPWMD relies on such information for purposes of preparing CEQA documents, considering development permits, etc.***

Moratorium on New or Expanded Water Service Connections

On March 24, 2011, the California Public Utilities Commission (CPUC) approved California American Water's (Cal-Am) request for a moratorium on water service connections. This action grants Cal-Am's moratorium request to refuse to connect new customers in certain areas of its Monterey District, and to institute a moratorium on new or expanded water service connections for projects that obtained all their necessary governmental permits after October 20, 2009, and on the use of Water Use Credits. The legitimacy of any Water Permits cannot be determined at this

D-3

time. The moratorium on expanded water service connections may affect the Operations and Maintenance Facility Building expansion.

D-3
Con't

Conclusion

MPWMD would specifically like to address the Initial Study findings related to the Impacts Section 8, *Hydrology and Water Quality*. The Environmental Checklist indicates that there is "No Impact" on water supplies as a result of this project, and yet there is no evidence to support these findings. There are no details provided in this document regarding the existing water use to accommodate the proposed Intensification of Use, despite current local restrictions on water use that apply to this project. A finding of no impact is not supported.

D-4

District staff appreciates the opportunity to comment on the Monterey-Salinas Transit's Draft Initial Study/Mitigated Negative Declaration for One Ryan Ranch Road, Monterey. The District has concerns about water supply and water demand for the proposed project. District staff further recommends that a MPWMD inspection is performed immediately to verify compliance with the District's Water Efficiency Standards prior to consideration of the project, particularly when the water supply is contingent on the Intensification of Use of the Site during a water supply emergency.

We trust that our comments will be addressed in the final Initial Study/Mitigated Negative Declaration of the project. If you have any questions or would like to discuss our comments, please contact me or Gabriela Ayala at 831-658-5601 or s.locke@mpwmd.net or gabby@mpwmd.net.

Sincerely,



Stephanie Locke
Water Demand Manager

LETTER D: Monterey Peninsula Water Management District

- D-1:** In response to this comment, **Section 2.7**, Project Approvals and Permits Required, has been revised to include the requirement of obtaining a Water Permit from the MPWMD. Please refer to **Section 3.0**, Revisions to the Draft IS/MND, for this revision. Please refer to Response to Comment D-2 below regarding water factor calculations.
- D-2:** **Appendix G**, Water Use Analysis for the Monterey Operations and Maintenance Facility Renovation and Expansion Project Memorandum (Water Use Memo), of the Draft IS/MND has been revised to clarify the water use calculations. Please refer to **Appendix C** of this document for the revised memorandum.

The Water Supply discussion in the Draft IS/MND contains a summary of the Water Use Memo that was included as **Appendix G** in the Draft IS/MND. Please note that this summarized discussion may not contain all the detailed information the MPWMD is requesting. It is recommended that the revised Water Use Memo, now included as **Appendix C** in this document, be reviewed by the MPWMD, as it contains a comprehensive, detailed discussion regarding the water use factor methodology, calculations and quantifications, and use history requested by the MPWMD.

As discussed in the Water Use Memo, the Proposed Project does not fit into the Non-Residential Water Use Factors, Group I under “Office/Warehouse” or “Auto” uses. The Group V, “Other” use, category appears to more appropriately account for the anticipated water use for the Proposed Project. The Operations and Maintenance Facility Project does not include any “Auto uses” due to the fact that MST’s large buses are capable of carrying at least 20-40 passengers. The fleet mix includes 35-foot, 40-foot, and 45-foot commuter style buses. All of which have more than four wheels. The new facility will also include smaller 22 to 24-foot mini buses, 29 foot buses and trolleys, and 30 foot hybrid buses. “Auto” use is not a comparable use for the proposed project.

The Proposed Project also does not include “Warehouse” use in so much as MST does not produce manufactured goods for sale. The parts storage area is used as support for the maintenance bays to repair and conduct preventative maintenance of the buses. MST is a public agency whose business is operating public transit service, not selling manufactured goods from its parts storage area.

While the fleet being housed is proposed to increase, the number of employees reporting to work at the site and remain on the site throughout the day will decrease. This decrease is due to the relocation of most Administrative and Management staff to a preexisting site at Ryan Ranch or Garden Road. During the week, drivers report to the Communication Center and subsequently leave the facility to drive their bus route. The number of drivers will increase but they do not stay on site and use water while they drive their approximately eight-hour shifts on-duty.

The number of maintenance staff including the mechanics will increase slightly, but is more than offset by the Administrative staff being moved to another location.

The “Office” use category only applies to a small percentage of the Proposed Project, less than 10%. The increase in square footage, over 90%, is designated as maintenance bays, tire rack, and steam clean. Using the “Office” category to predict future water use appears to be an inappropriate comparable use.

For the fact that Group I uses do not fit the description of the proposed use of the new square footage and facility, the fifth Group, “Other” is used for calculating future water use. MST looks forward to working closely with the MPWMD to provide better understanding of the Proposed Project and current and future water uses as part of the Water Permit process.

A site inspection to verify compliance with the Water Efficiency Standards pursuant to District Rule 143 was conducted with the MPWMD on June 25, 2015. The existing site was deemed in compliance.

While the revised Water Use Memo explains the water use anticipated for the proposed project, further mechanisms with the MPWMD are available to ensure that the proposed project does not increase the total water use. MST will work with the WPWMD during the permitting phase to ensure that the proposed project does not increase its water demand above existing use.

- D-3:** Comment noted. The conditional use permit for the existing MST facility was approved by the City pre-MPWMD and Water Permit requirements, and, therefore, there is no Water Permit for the existing facility. Given the historic use of water at the site, MST will work with the MPWMD to determine whether the moratorium is applicable to the Proposed Project.
- D-4:** Comment states that the finding of “no impact” in the Environmental Checklist for **Section 8**, Hydrology and Water Quality, is not supported due to lack of evidence. MST included a Water Use Memo as **Appendix G** to the Draft IS/MND which contained the evidence to support this finding. In addition, MST has revised and updated the Water Use Memo to provide further evidence to support this finding, which is included in Appendix C of this document. Therefore, the findings in the Draft IS/MND remain unchanged.

3.0 REVISIONS TO THE DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Chapter 3, Project Description

Page 8, **Figure 3**, Site Plan, has been revised and replaced. This revised figure is included in **Appendix B** of this document.

Page 12, **Figure 6**, Grading and Drainage Plan, has been revised and replaced. This revised figure is included in **Appendix B** of this document.

Page 14, **Section 2.7**, Project Approvals and Permits Required, the bullet list is revised as follows:

- “City of Monterey – Grading Permit, Amendment to Existing Use Permit (Planning Commission approval), Tree Removal Permit, Building Permit, Fire Department Review, Architectural Review;
- Monterey Bay Unified Air Pollution Control District – Notification of Demolition and Renovation, Authority to Construct and Permit to Operate: Gasoline Storage/Dispensing Facility;
- Monterey County Airport Land Use Commission - Consistency Determination;
- Regional Water Quality Control Board – General Construction Permit;
- Monterey Peninsula Water Management District – Water Permit;
- Federal Aviation Administration – Notice of Proposed Construction or Alteration; and
- MST Board Approval.”

Chapter 3, Environmental Evaluation, Section E. Cultural Resources

Page 45, Impacts Explanation b) is revised as follows:

- b) **“Less-than-Significant Impact with Mitigation.** The construction of the Proposed Project would primarily occur within the existing developed and paved areas of the site with some ground-disturbing activities required in the adjacent undeveloped, vegetated areas. The project site is identified in an area of moderate to high archaeological sensitivity in the City’s General Plan due to its proximity to Canyon Del Rey Creek, which may have provided resources to early Costanoan and Esselen people. However, the majority of the project site is developed, consisting of buildings, pavement, and other facilities required for the on-going operations and maintenance activities.

AECOM conducted an Archaeological Reconnaissance Survey. No cultural resources were identified within or adjacent to the MST project area as a result of the survey effort or background research. Geologic mapping (Dibblee and Minch 2007) shows the project area as dissected Pleistocene alluvium (Qoa) over Miocene Monterey Formation. This mapping was confirmed during the field survey. Both of these geologic units were deposited long before the first recorded human occupation of California, circa 13,500 years ago. As such, there is no potential for buried archaeological resources to be

encountered during project implementation. Given that the majority of the surface of the project area has already been graded and paved, and that no archaeological resources were identified at the surface during the field survey, the MST project area is considered to have a very low potential for archaeological resources.

Most of the project area has been modified and is primarily paved or landscaped. Given this information, along with the paucity of previously identified archaeological resources in the immediately surrounding area and the geomorphic setting of the project, there is a very low potential for encountering archaeological resources.

However, there is always a possibility that previously unidentified/unanticipated archaeological resources could be discovered during project implementation, even in areas not considered to be sensitive for archaeological resources. There are no known archaeological resources on the project site. The Proposed Project would not impact any known archaeological resources or sites. However, as with all ground-disturbing activities within areas of moderate to high archaeological sensitivity, construction activities associated with the project may result in impacts to unknown archaeological resources or sites. This is considered a potentially significant impact that can be reduced to a less-than-significant level with the implementation of **Mitigation Measure 7** described below.”

APPENDIX A
Storm Water Control Plan for Monterey-Salinas Transit Monterey
Bay Operations and Maintenance Facility Renovation and
Expansion, June 4, 2015

Storm Water Control Plan for

Monterey-Salinas Transit Monterey Bay Operations and Maintenance Facility Renovation and Expansion

June 4, 2015

1 Ryan Ranch Road
Monterey, CA 93940
APN 259-011-067

Prepared By:

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Job No.: 3055.05

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June 4, 2015

WE Project No.: 3055.05

Mr. Carl Wulf
Monterey-Salinas Transit
1 Ryan Ranch Rd.
Monterey CA 93940

**Re: Stormwater Control Plan (Planning Submittal) for:
Monterey-Salinas Transit – Monterey Bay Operations and Maintenance Facility
Renovation and Expansion, 1 Ryan Ranch Road, Monterey**

Dear Mr. Wulf,

We have prepared this Stormwater Control Plan pursuant to our contracted scope. This Plan summarizes the project's proposed stormwater management strategy pursuant to the *Post Construction Stormwater Management Requirements for Development Projects in the Central Coast Region*, Central Coast Regional Water Quality Control Board Resolution No. R3-2013-0032, and the guidance documents promulgated by the Monterey Regional Stormwater Management Program (MRSWMP), including the *Stormwater Technical Guide for Low Impact Development*, dated 18 February 2014.

Should you have any questions regarding the analyses presented herein, or should you require anything further, please don't hesitate to contact us.

Very truly yours,

Whitson Engineers



Nathaniel Milam, PE, QSD
Civil Engineer

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Attachment G: Estimation of Field Saturated Hydraulic Conductivity

I. Project Data

Table 1. Project Data

Project Name/Number	Monterey Salinas Transit – Monterey Bay Operations and Maintenance Facility Renovation and Expansion
Application Submittal Date	1/30/2015
Project Location	1 Ryan Ranch Road, Monterey, CA 93940
Project Phase No.	Not a phased project
Project Type and Description	Expansion of existing industrial site (bus yard)
Project Site Area ¹	228,500 SF
New Impervious Surface Area ²	20,570 SF
Replaced Impervious Surface Area ²	54,385 SF
Removed Impervious Surface Area ²	960 SF
Total Pre-Project Impervious Surface Area ²	153,815 SF
Total Post-Project Impervious Surface Area ²	173,425 SF
Total New + Replaced Impervious Area ²	74,956 SF
Net Impervious Area ^{2,3}	74,956 SF
Watershed Management Zone(s)	1
LID Design Storm Frequency and Depth	Storm Frequency = 95 th percentile 24-Hour Depth = 1.3 in 85 th Percentile Flow Rate = 0.2 in/hr
Urban Sustainability Area	No
Approved Watershed or Regional Plan	No

¹ Project Site: The area defined by the legal boundaries of a parcel or parcels of land within which the new development or redevelopment takes place and is subject to the Post-Construction Stormwater Management Requirements. (CCRWQCB Resolution No. R3-2013-0032, Attachment C.)

² Does not include areas tributary to sanitary sewer.

³ Net Impervious Area: New + Replaced Impervious Surface Area minus the difference between the Total Pre-Project and Total Post-Project Impervious Surface Areas, if the Post-Project Impervious Surface Area is less than the Pre-Project Impervious Surface Area. If the Total Post-Project Impervious Surface Area is greater than the Pre-Project, then the Net Impervious Area is equal to New + Replaced Impervious Surface Area.

II. Setting

II.A. Project Location and Description

The project site is an existing bus operations yard located within the City of Monterey, between the Ryan Ranch commercial development and Monterey Peninsula Unified School District maintenance facility.

The project expands the number of bus maintenance bays; replaces existing fuel and bus wash equipment; expands and improves bus parking and circulation; and expands the site entrance to accommodate new automatic vehicle gates and new accessible path of travel from Ryan Ranch Road.

II.B. Existing Site Features and Conditions

The developed site currently extends to the toe of an approximately 1H:1V cut slope on the site's northern and eastern boundaries; to the top of a fill slope on the site's western boundary (with an approximately 1H:1V cut slope extending to the highway below); and to the top of a fill slope on the site's south boundary (with an approximately 2H:1V cut slope extending to Ryan Ranch Road below).

Native soils consist of highly erodible surficial silty sands giving way to decomposed to highly weathered sandstone. Fills were encountered during the geotechnical investigation along the western and southern edges of the existing development. Fill soils consist of clayey and silty sands, likely obtained on site during site development in 1977. The remainder of the site was cut into native soil.

The grades within the developed areas generally slope from north to south. The difference in elevation from the northwest corner of the site to the driveway connection at Ryan Ranch Road is 30', which provides an average site slope of 5%. Within the site, the building pad and immediately surrounding hardscape is on a single level, and the bus yard and passenger vehicle parking lots slope at between 2% and 5%. The entry drive slopes at approximately 11%. Cut and fill slopes closely abut the existing development on all sides.

II.C. Opportunities and Constraints for Stormwater Control

The existing site presents significant constraints for implementation of stormwater controls. The primary constraints are:

1. The existing site has paving built out to abutting steep cut and fill slopes, and the proposed project expands pavement areas even further, leaving little room for implementation of landscaped bioretention facilities (which require relatively level areas for implementation).
2. The bus yard and bus aisles are heavily loaded, and the soils under the site become more impervious with depth. Underground infiltration systems are not recommended under bus parking and circulation areas, as concentrated stormwater dispersal under heavily loaded pavements is anticipated to compromise the pavement's life span, in addition to the potential for structural failure of the underground system. To the extent feasible, stormwater should be infiltrated in areas of lesser loading.
3. The geotechnical report recommends that concentrated stormwater infiltration not occur within 30' of existing building foundations, nor within 30' of down-gradient slopes (measured from the bottom

of the infiltration facility to the same elevation on the adjacent slope). This significantly limits the locations available for stormwater infiltration, since the building is located roughly in the center of the site, and steep down-gradient slopes occur immediately adjacent to the edge of improvements on the southern and western sides of the site.

4. Native soils have low infiltration rates, and infiltration rates decrease with depth, and as a result, stormwater disposal via infiltration (i.e., on-site retention) is anticipated to be slow, and result in long ponding periods (longer than the typical three-day ponding limit). Per direction from the City and Central Coast Regional Water Control Board staff¹, the design has been modified to provide the required stormwater retention volume, in addition to stormwater detention.

The opportunities presented by the site are:

1. The steep topography within the site could potentially allow piped stormwater to “daylight” into surface facilities (e.g., bioretention planters or tree box type biofiltration planters).
2. There is an area adjacent to the site’s entry which could potentially be used for implementation of stormwater controls. However, this area is not located on the MST property, but on a City-owned parcel. Additionally, underground utilities may limit the space available for implementation of underground facilities at this location.
3. There is a city-owned storm drain adjacent to the project site, at a depth suitable for implementation of on-site stormwater treatment measures.

III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

Rather than development of a new site, the project improvements are located on an existing developed site, and within existing impervious areas on the site, to the extent feasible.

III.A.2. Preservation of natural drainage features

No natural drainage features are present within the project area.

III.A.3. Setbacks from creeks, wetlands, and riparian habitats

Creeks, wetlands, and riparian habitats are not within the project area, nor in close proximity (within 100’).

¹ Teleconference, April 23, 2015. N. Milam (Whitson Engineers), Tricia Wotan and Norman Green (City of Monterey), and Dominick Roques and Julia Dyer (CCRWQCB). CCRWQCB staff indicated that the project would not be approved without implementing the required on-site retention, or alternative off-site mitigation. MST does not own or control property within the same watershed which is suitable for off-site mitigation, and the City does not have an off-site mitigation fee-in-lieu program in place.

III.A.4. Minimization of imperviousness

Rather than development of a new site, the project improvements are located on an existing developed site, and within existing impervious areas on the site, to the extent feasible.

III.A.5. Use of drainage as a design element

High flow rate tree box filters are proposed to be used on the site where feasible.

III.B. Use of Permeable Pavements

Permeable pavements are not recommended nor proposed for this site, due primarily to heavy vehicular loading within bus areas, the industrial nature of the site, relatively steep pavement slopes, and the presence of relatively impermeable soil layers at shallow depths.

III.C. Dispersal of Runoff to Pervious Areas

The grades adjacent to and down-slope from the impervious project areas are steep and highly erodible, and therefore not suitable for dispersal of runoff.

III.D. Stormwater Control Measures

Due to the very limited available area on the site, high flow rate tree box filters are the proposed stormwater treatment facilities. The tree box filters were sized to meet an area ratio of 0.44% in accordance with MRSWMP Appendix C. *Technical Criteria for Non-LID Treatment Facilities*.

In addition, on-site detention/retention is provided via an underground chamber-type system. This system is sized to meet the Tier 3 retention and Tier 4 hydromodification requirements. Due to poor infiltration characteristics of the existing soils, and limited space available for implementation of the system, the system is anticipated to have standing water after rain events for longer than 3 days (which is the typical maximum allowed for standing water). Due to the low anticipated soil infiltration rates, infiltration is not accounted for in these calculations.

IV. Documentation of Drainage Design

IV.A. Description of Drainage Management Areas

Table 2. Drainage Management Area Summary

DMA Name	Description	Area (s.f.)	Tributary to SCM
None	Area draining to sanitary sewer, and thus not included in stormwater calculations	5,525	Sanitary Sewer
1	AC pavement at north west corner of site; down-gradient from bus wash; used for bus circulation and parking	12,521	Tree box filter #1 and then Underground Chambers #5
2	AC pavement west of building; used for bus	6,749	Tree box filter #2 and then

	parking and circulation		Underground Chambers #5
3	Sidewalk and AC pavement south of building; used for bus and passenger vehicle parking and circulation	16,032	Tree box filter #3 and then Underground Chambers #5
4	AC pavement north of building; used for bus parking and circulation; drains to storm drain inlets located along north side of building; the storm drain drains into Tree Box Filter #4	11,518	Tree box filter #4 and then Underground Chambers #5
5	The roof of the O&M building	32,100	Underground Chambers #5
6	Fuel and wash canopies	7,170	Underground Chambers #5

IV.B. Stormwater Treatment SCM Calculations

Table 3. Self-Treating Areas

DMA Name Area (square feet)

None	
------	--

Table 4. Self-Retaining Areas

DMA Name Area (square feet)

None	
------	--

Table 5.1. Areas Draining to High-Flow Rate Tree Box Filter #1

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor (s.f.)	TREE BOX FILTER #1 (6'x10')		
					85 th Percentile Precipitation = 0.2 in/hr Design Media Treatment Rate = 50 in/hr		
1	12,521	Pavement	1.0	12,521	Area Ratio Required	Minimum Required Area (s.f.)	Proposed Area (s.f.)
Total				12,521	0.44%	55	60

Table 5.2. Areas Draining to High-Flow Rate Tree Box Filter #2

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor (s.f.)	TREE BOX FILTER #2 (6'x6')		
					85 th Percentile Precipitation = 0.2 in/hr Design Media Treatment Rate = 50 in/hr		
2	6,749	Pavement	1.0	6,749	Area Ratio Required	Minimum Required Area (s.f.)	Proposed Area (s.f.)
Total				6,749	0.44%	30	36

Table 5.3. High-Flow Rate Tree Box Filter #3

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor (s.f.)	TREE BOX FILTER #3 (6'x12')		
					85 th Percentile Precipitation = 0.2 in/hr Design Media Treatment Rate = 50 in/hr		
3	16,032	Pavement	1.0	16,032	Area Ratio Required	Minimum Required Area (s.f.)	Proposed Area (s.f.)
Total				16,032	0.44%	71	72

Table 5.4. High-Flow Rate Tree Box Filter #4

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor (s.f.)	TREE BOX FILTER #4 (6'x10')		
					85 th Percentile Precipitation = 0.2 in/hr Media Treatment Rate = 50 in/hr		
4	11,518	Pavement	1.0	11,518	Area Ratio Required	Minimum Required Area (s.f.)	Proposed Area (s.f.)
Total				11,518	0.44%	51	60

DMA's 5 and 6 are building roofs, and so are not proposed to be treated upstream of SCM Underground Chambers #5. Treatment for DMA's 5 and 6 is provided in Underground Chambers #5.

IV.C. Stormwater Retention (Performance Requirement #3) Calculations

Table 6.1 Retention “C”

Surface	Area (s.f.)		
Impervious (New + Replaced)	82,165	Imperviousness “i”	Retention “C”
Pervious	3,925		
Total	86,090	0.95	0.81

Retention “C” calculated in accordance with Resolution R3-2013-0032, Attachment D, section 2), as follows:

$$C = 0.858 i^3 - 0.78 i^2 + 0.774 i + 0.04$$

The required retention volume is calculated in accordance with Resolution R3-2013-0032, Attachment D, section 3), Method 1: Simple Method.

Table 6.2 Required Retention Volume

Surface	Area (s.f.)	Redevelopment Factor	Retention “C”	24-Hour 95 th Percentile Precip. (inches)	Required Retention Volume (c.f.)
New Imp. Areas	20,570	1.0	0.81	1.3	4,534
Replaced Imp. Areas	54,385	0.5			
Pervious Areas Within SCM Watershed	3,902	1.0			

The retention volume provided on the site is as follows:

Table 7. Retention Volume Provided

SCM	Type	Footprint (s.f.)	Stage ¹	Retention Volume Provided (c.f.) ²
5	Underground chambers	1,900	4'	4,534
Total				4,534

¹ Stage at which system begins discharging to storm drain.

² Calculated based on Stormtech MC-4500 system.

IV.A. Peak Flow Management (Performance Requirement #4) Calculations

Runoff rates in the proposed (post-project) condition during the 2- through 10-year design storm events must be less than the existing (pre-project) runoff rates during the same storm events, in accordance with Performance Requirement #4: Peak Management, Regional Permit Attachment 1, Section B.5. Performance Requirement #4 will be satisfied by providing a detention volume in the proposed underground chambers, in addition to the required retention volume.

Table 8. Stage-Storage-Discharge Curve for SCM 5 (Underground Chambers)

Stage (ft)	Storage (cf)	Infiltration (cfs)	Discharge to Storm Drain (cfs)	Description
0	0	0	0	System empty; bottom of rock
1	760	0	0	Bottom of chamber / system invert
4	4,534	0	0	Orifice elevation; begin discharge to SD
6	7,695	0	5.2	Top of chamber
7	8,455	0	6.5	Top of rock; overflow weir elevation

² Calculated based on manufacturer literature for Stormtech MC-4500 system using rock porosity of 0.4, and equivalent ponded depth of 4.45' at top of rock.

The required detention volume is calculated in accordance with *Table 1. Routing Method Criteria*, as found in Regional Permit Attachment D. The specific Routing Method Criteria utilized are:

Table 9: Routing Method Criteria

Hydrograph Analysis Method	NRCS TR-55 (using the HEC-HMS computer program)
Pond Routing Method	Storage-Discharge
Infiltration Rate	0 in/hr
Rainfall Distribution	NRCS Type 1
Time of Concentration	15 minutes
Time Increment	1 minutes (0.02 hour)

The retention/detention system was optimized based on the area available for the system; the required 95th percentile retention volume; and the required maximum 2- and 10-year peak discharge rates. The final pond routing calculations were completed and the peak flows for the 2- and 10-year design scenarios were compared to the existing, pre-project peaks. The results are summarized below.

Table 10. Peak Flow Comparison

	Existing Peak Flow (cfs)	Proposed Peak Flow (cfs)
2-Year Design Storm	3.85	3.65
10-Year Design Storm	6.58	6.22

V. Source Control Measures

Source control measures are outlined in the site's **Industrial SWPPP**.

VI. Stormwater Facility Maintenance

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

Monterey Salinas Transit owns and operates the property, and will maintain the proposed SCMs as outlined in the site's **Industrial SWPPP**.

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

An Operation and Maintenance Plan (O&M Plan) will be prepared and implemented for the facility prior to final acceptance of the facility. The O&M Plan will be incorporated into the site's **Industrial SWPPP**.

VII. Construction Checklist

Table 11. Construction Plan Checklist

Stormwater Control Plan Page #	SCM Description	See Plan Sheet #s
9	Tree box filter #1	C-102
9	Tree box filter #2	C-102
10	Tree box filter #3	C-102
10	Tree box filter #4	C-102
12	Underground chambers #5	C-102

VIII. Certifications

“The preliminary design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the Monterey Regional Stormwater Management Program’s Stormwater Technical Guide for Low Impact Development dated 18 February 2014.”

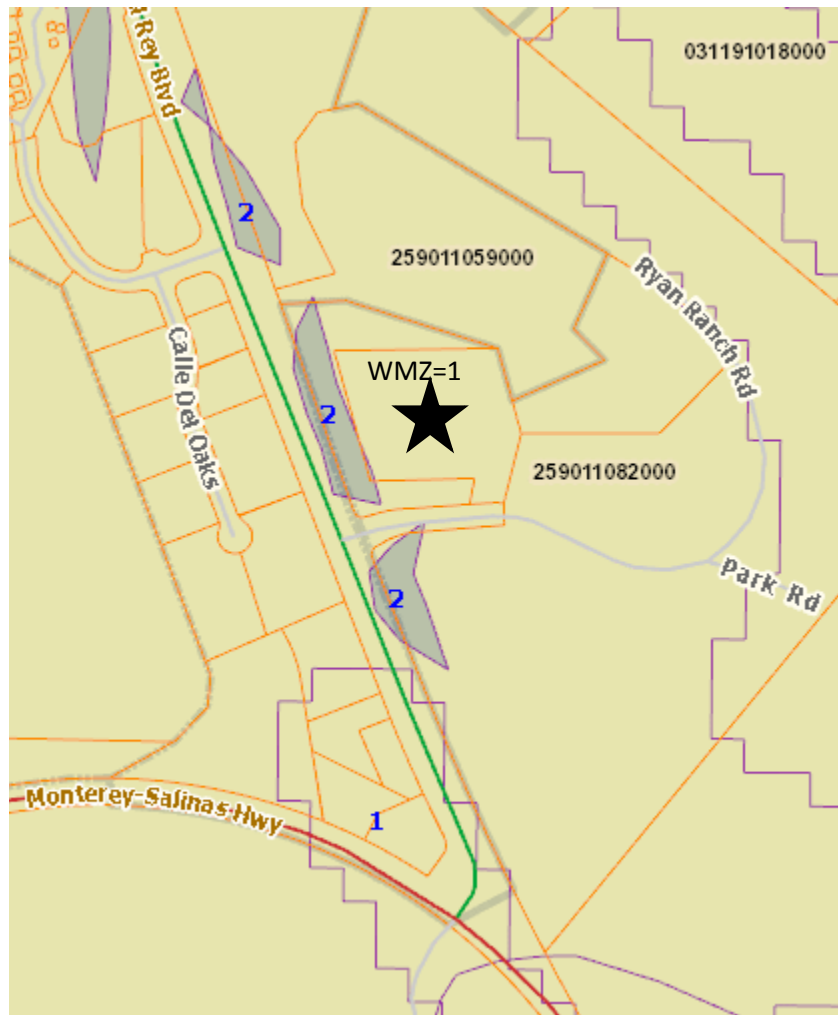
Richard P. Weber
Principal, Whitson Engineers



date

Attachment A.

WMZ and Groundwater Basin Map



Site is underlain by the Salinas Groundwater Basin

Source: Monterey County, http://65.249.61.35/MCo_MapViewer/, accessed 1/7/2015

Attachment B

85th PERCENTILE PRECIPITATION MAP

95th PERCENTILE PRECIPITATION MAP

SOURCE: CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD

MONTEREY-SALINAS TRANSIT O&M FACILITY EXPANSION

85th & 95th PERCENTILE MAPS

MONTEREY, CALIFORNIA

Project No.: 3055.05

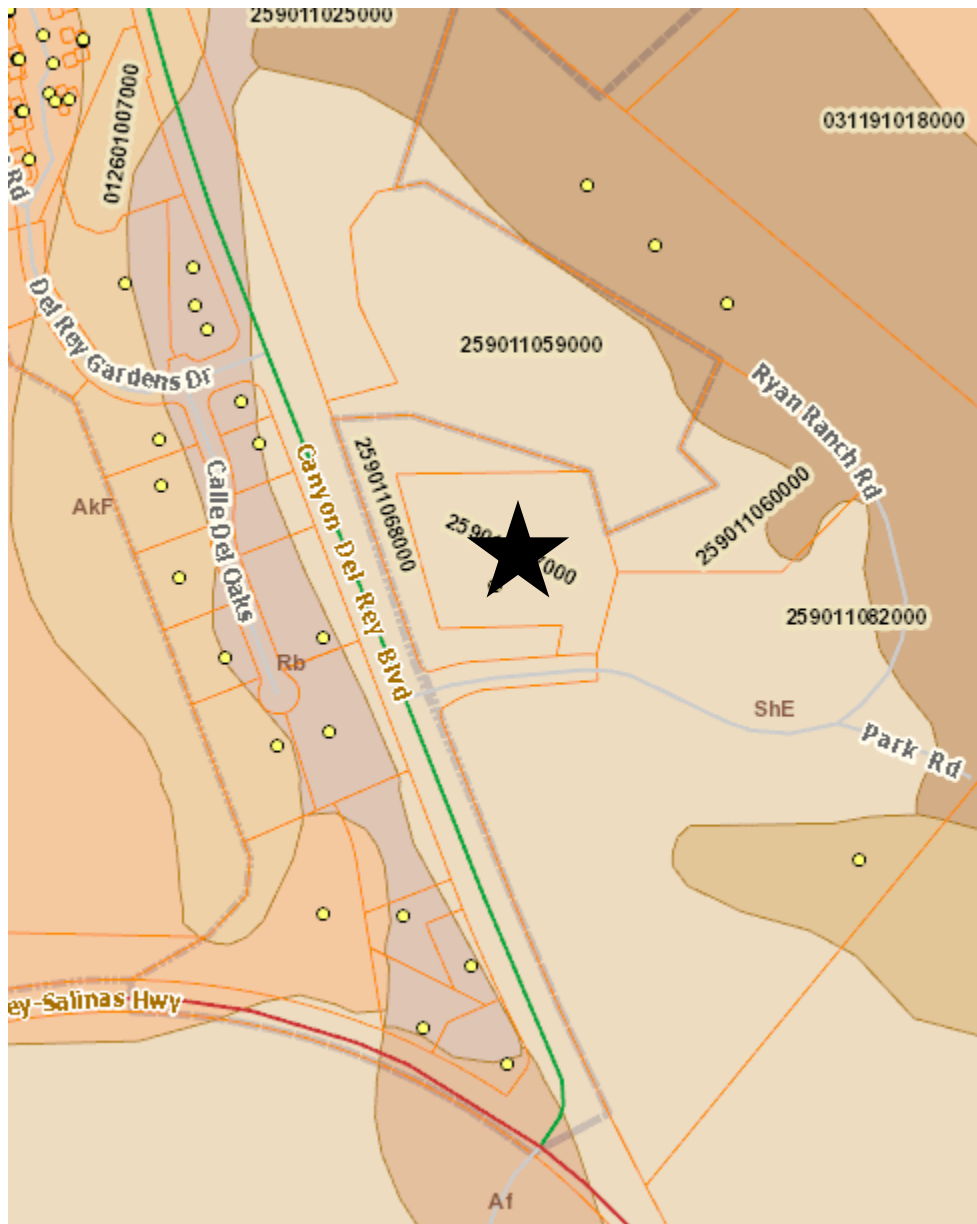


JAN 30, 2015



NO SCALE

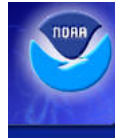
Attachment C SCS Soil Survey Map



ShE – Santa Ynez Fine Sandy Loam, 15 to 30 percent slopes.
Runoff is rapid, and erosion hazard is high
Hydrologic Soil Group “D”

SCS Permeability Estimates for ShE:

Depth (in.)	Permeability (in./hr.)
0 – 18	0.6 – 2.0
18 – 43	<0.06
43 - 61	0.06 – 0.2



NOAA's National Weather Service

Hydrometeorological Design Studies Division

Precipitation Frequency Data Server (PFDS)

Home

Site Map

News

Organization



General Info

- Homepage
- Current Projects
- FAQ
- Glossary

Precipitation Frequency (PF)

- PF Data Server
 - PF in GIS Format
 - PF Maps
 - Temporal Distr.
 - Time Series Data
 - PFDS Perform.
- PF Documents

Probable Maximum Precipitation (PMP)

- PMP Documents

Miscellaneous

- Publications
- AEP Storm Analysis
- Record Precipitation

Contact Us

- Inquiries
- List-server



Attachment D

NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: CA

DATA DESCRIPTION

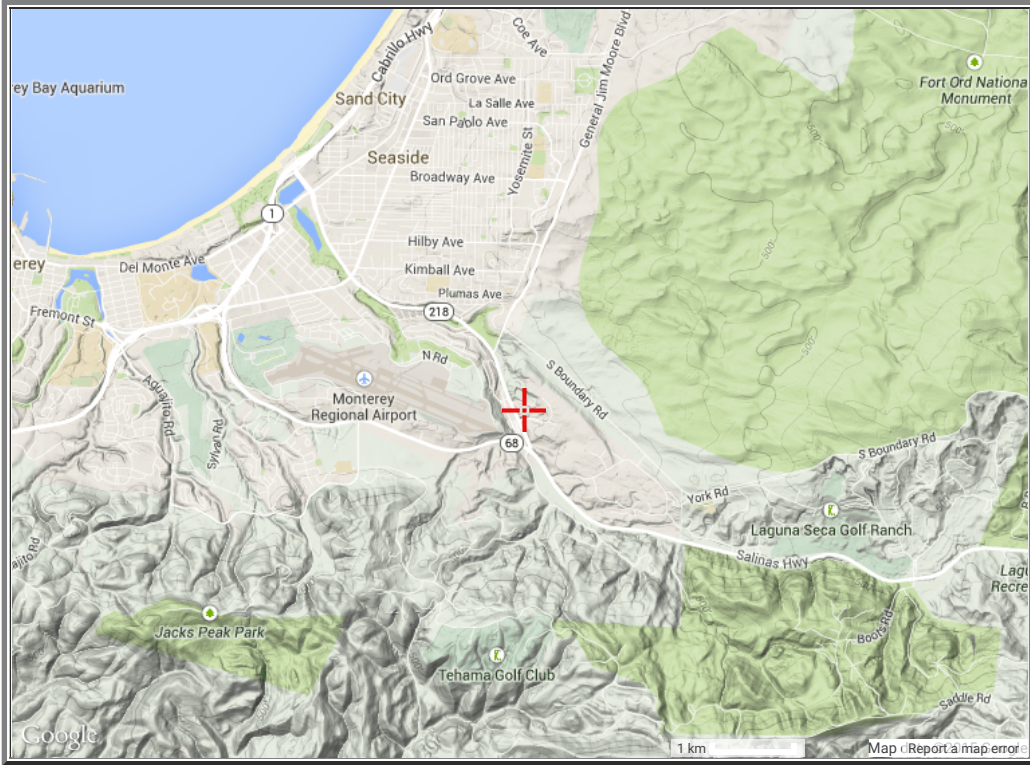
Data type: precipitation depth Units: english Time series type: partial duration

SELECT LOCATION

1. Manually:

- a) Enter location (decimal degrees, use "-" for S and W): latitude: longitude: submit
- b) Select station (click here for a list of stations used in frequency analysis for CA): select station

2. Use map:



a) Select location (move crosshair or double click)

b) Click on station icon (show stations on map)

LOCATION INFORMATION:

Name: Monterey, California, US*

Latitude: 36.5850°

Longitude: -121.8287°

Elevation: 169 ft*

* source: Google Maps

POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION

NOAA Atlas 14, Volume 6, Version 2

PF tabular PF graphical Supplementary information  Print Page

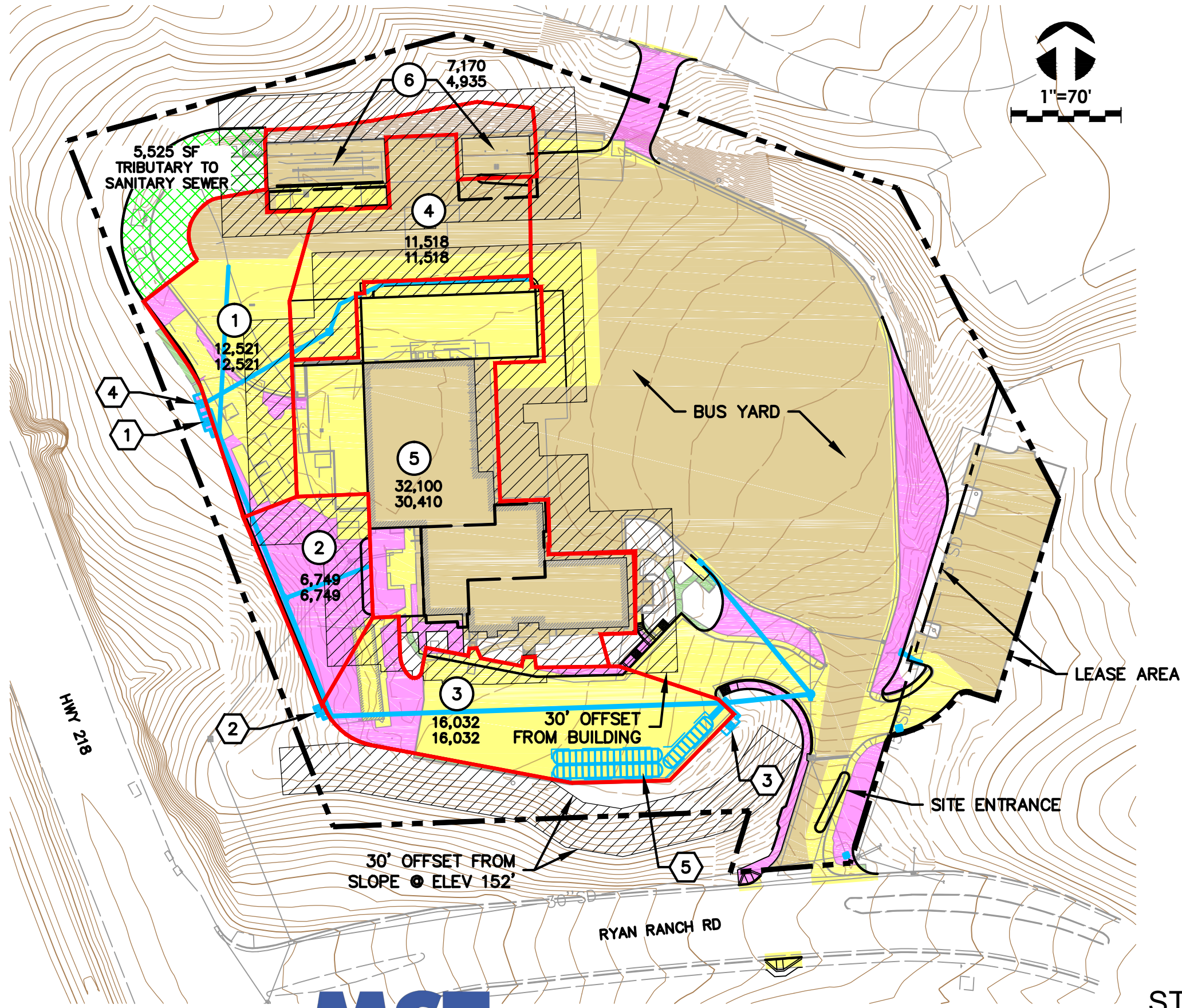
PDS-based precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.145 (0.129-0.165)	0.179 (0.158-0.204)	0.228 (0.201-0.261)	0.271 (0.237-0.314)	0.337 (0.283-0.405)	0.392 (0.321-0.483)	0.453 (0.361-0.575)	0.522 (0.402-0.685)	0.625 (0.458-0.861)	0.714 (0.503-1.02)
10-min	0.208 (0.184-0.237)	0.256 (0.227-0.293)	0.326 (0.288-0.374)	0.389 (0.340-0.450)	0.482 (0.405-0.580)	0.562 (0.460-0.693)	0.650 (0.517-0.825)	0.748 (0.576-0.981)	0.896 (0.657-1.23)	1.02 (0.721-1.47)
15-min	0.252 (0.223-0.287)	0.310 (0.274-0.354)	0.395 (0.348-0.452)	0.470 (0.411-0.544)	0.583 (0.490-0.702)	0.679 (0.556-0.838)	0.785 (0.625-0.997)	0.905 (0.697-1.19)	1.08 (0.795-1.49)	1.24 (0.872-1.77)
30-min	0.362 (0.321-0.413)	0.446 (0.395-0.510)	0.568 (0.501-0.651)	0.677 (0.591-0.783)	0.840 (0.705-1.01)	0.978 (0.801-1.21)	1.13 (0.900-1.44)	1.30 (1.00-1.71)	1.56 (1.14-2.15)	1.78 (1.25-2.55)
60-min	0.451 (0.400-0.514)	0.556 (0.492-0.635)	0.708 (0.624-0.811)	0.843 (0.736-0.975)	1.05 (0.878-1.26)	1.22 (0.997-1.50)	1.41 (1.12-1.79)	1.62 (1.25-2.13)	1.94 (1.43-2.67)	2.22 (1.56-3.18)
2-hr	0.624 (0.553-0.711)	0.767 (0.679-0.875)	0.968 (0.854-1.11)	1.15 (1.00-1.32)	1.40 (1.18-1.69)	1.62 (1.32-1.99)	1.85 (1.47-2.35)	2.10 (1.62-2.76)	2.48 (1.82-3.42)	2.80 (1.97-4.01)
3-hr	0.763 (0.676-0.870)	0.939 (0.831-1.07)	1.19 (1.04-1.36)	1.40 (1.22-1.62)	1.71 (1.43-2.05)	1.96 (1.61-2.42)	2.23 (1.78-2.84)	2.53 (1.95-3.32)	2.97 (2.17-4.08)	3.33 (2.35-4.77)
6-hr	0.988 (0.876-1.13)	1.23 (1.09-1.40)	1.56 (1.37-1.78)	1.84 (1.61-2.13)	2.24 (1.88-2.70)	2.57 (2.10-3.17)	2.92 (2.32-3.70)	3.29 (2.54-4.32)	3.83 (2.81-5.27)	4.27 (3.01-6.12)

12-hr	1.18 (1.04-1.34)	1.49 (1.32-1.70)	1.92 (1.70-2.20)	2.29 (2.00-2.65)	2.81 (2.36-3.38)	3.23 (2.65-3.99)	3.68 (2.93-4.67)	4.16 (3.20-5.46)	4.85 (3.56-6.67)	5.41 (3.81-7.75)
24-hr	1.55 (1.43-1.72)	2.01 (1.84-2.23)	2.63 (2.41-2.93)	3.16 (2.87-3.54)	3.90 (3.45-4.50)	4.50 (3.91-5.29)	5.13 (4.36-6.15)	5.80 (4.82-7.13)	6.76 (5.42-8.60)	7.54 (5.87-9.87)
2-day	1.94 (1.78-2.16)	2.54 (2.33-2.82)	3.33 (3.05-3.71)	3.99 (3.63-4.48)	4.91 (4.34-5.66)	5.63 (4.89-6.61)	6.38 (5.42-7.64)	7.16 (5.95-8.80)	8.26 (6.63-10.5)	9.14 (7.12-12.0)
3-day	2.22 (2.04-2.47)	2.91 (2.67-3.24)	3.82 (3.50-4.26)	4.57 (4.15-5.13)	5.59 (4.94-6.46)	6.39 (5.55-7.51)	7.21 (6.14-8.65)	8.07 (6.70-9.90)	9.24 (7.41-11.8)	10.2 (7.92-13.3)
4-day	2.44 (2.24-2.71)	3.20 (2.94-3.56)	4.20 (3.85-4.68)	5.02 (4.56-5.63)	6.13 (5.42-7.08)	6.99 (6.08-8.22)	7.87 (6.70-9.44)	8.78 (7.30-10.8)	10.0 (8.04-12.8)	11.0 (8.57-14.4)
7-day	2.99 (2.74-3.32)	3.95 (3.63-4.40)	5.20 (4.76-5.79)	6.20 (5.64-6.96)	7.56 (6.68-8.73)	8.60 (7.47-10.1)	9.65 (8.21-11.6)	10.7 (8.92-13.2)	12.2 (9.79-15.5)	13.4 (10.4-17.5)
10-day	3.37 (3.09-3.74)	4.47 (4.11-4.98)	5.89 (5.39-6.57)	7.03 (6.39-7.89)	8.55 (7.56-9.87)	9.71 (8.44-11.4)	10.9 (9.26-13.1)	12.1 (10.0-14.8)	13.7 (11.0-17.4)	14.9 (11.6-19.6)
20-day	4.44 (4.08-4.93)	5.91 (5.42-6.57)	7.76 (7.10-8.65)	9.23 (8.39-10.4)	11.2 (9.87-12.9)	12.6 (10.9-14.8)	14.0 (11.9-16.8)	15.5 (12.9-19.0)	17.4 (14.0-22.1)	18.9 (14.7-24.7)
30-day	5.40 (4.96-6.00)	7.16 (6.57-7.96)	9.35 (8.56-10.4)	11.1 (10.1-12.4)	13.3 (11.8-15.4)	15.0 (13.0-17.6)	16.6 (14.1-19.9)	18.2 (15.1-22.4)	20.4 (16.3-25.9)	22.0 (17.1-28.8)
45-day	6.79 (6.24-7.54)	8.91 (8.18-9.92)	11.5 (10.6-12.9)	13.6 (12.3-15.2)	16.2 (14.3-18.7)	18.1 (15.7-21.3)	20.0 (17.0-24.0)	21.8 (18.1-26.8)	24.2 (19.4-30.8)	26.0 (20.3-34.1)
60-day	8.11 (7.45-9.02)	10.5 (9.67-11.7)	13.5 (12.4-15.1)	15.8 (14.4-17.8)	18.8 (16.6-21.7)	20.9 (18.1-24.5)	22.9 (19.5-27.5)	25.0 (20.7-30.7)	27.6 (22.1-35.1)	29.5 (23.0-38.7)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in csv format:

Main Link Categories:
[Home](#) | [OHD](#)



LEGEND

- PROJECT SITE (228,500 SF)
(INCLUDES SUBJECT PARCEL & LEASE AREA)
- IMPERVIOUS AREA TO REMAIN (98,469 SF)
- NEW IMPERVIOUS AREA (20,571 SF)*
- REPLACED IMPERVIOUS AREA (54,385 SF)*
- REMOVED IMPERVIOUS AREA (960 SF)
- PERVIOUS AREA TO REMAIN
- SCM TRIBUTARY AREA (89,481 SF IMP. AREA)
- 6 2,605
2,750
TRIBUTARY AREA NUMBER
TOTAL AREA (SF)
IMPERVIOUS AREA (SF)
- 4 SCM NUMBER
- *DOES NOT INCLUDE AREA TRIBUTARY TO SANITARY SEWER.

ATTACHMENT 'E' STORM WATER CONTROL PLAN EXHIBIT

MST
MONTEREY-SALINAS TRANSIT

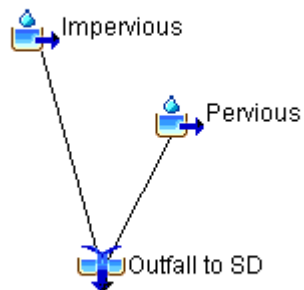
Operations & Maintenance Facility
Expansion & Remodel

SCHEMATIC DESIGN MILESTONE

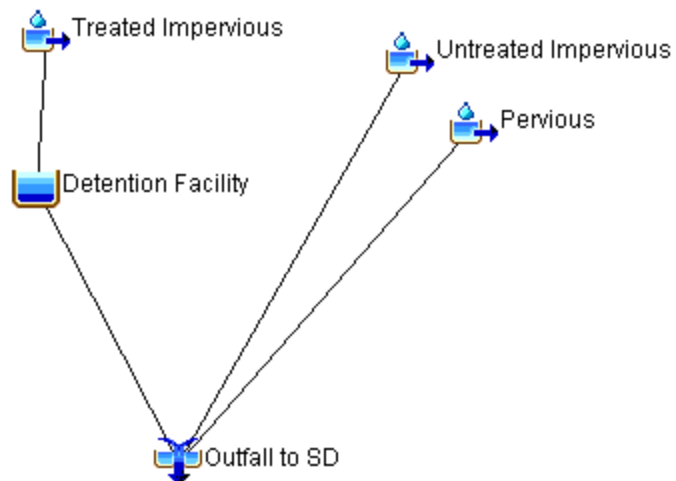
WE WHITSON
ENGINEERS **AECOM**

Attachment F
HEC-HMS Models, Inputs, and Results

Existing Site Model

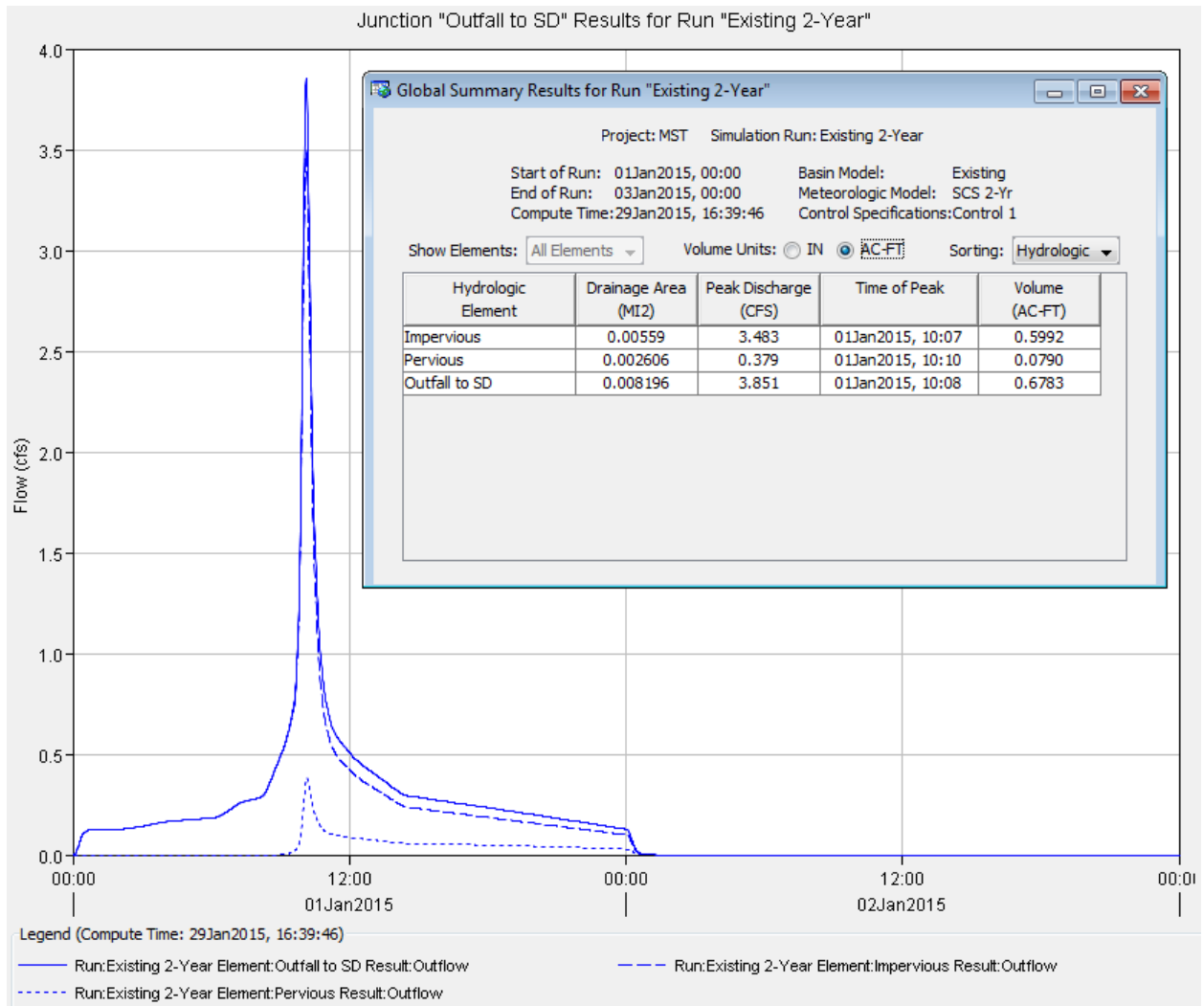


Proposed Site Model

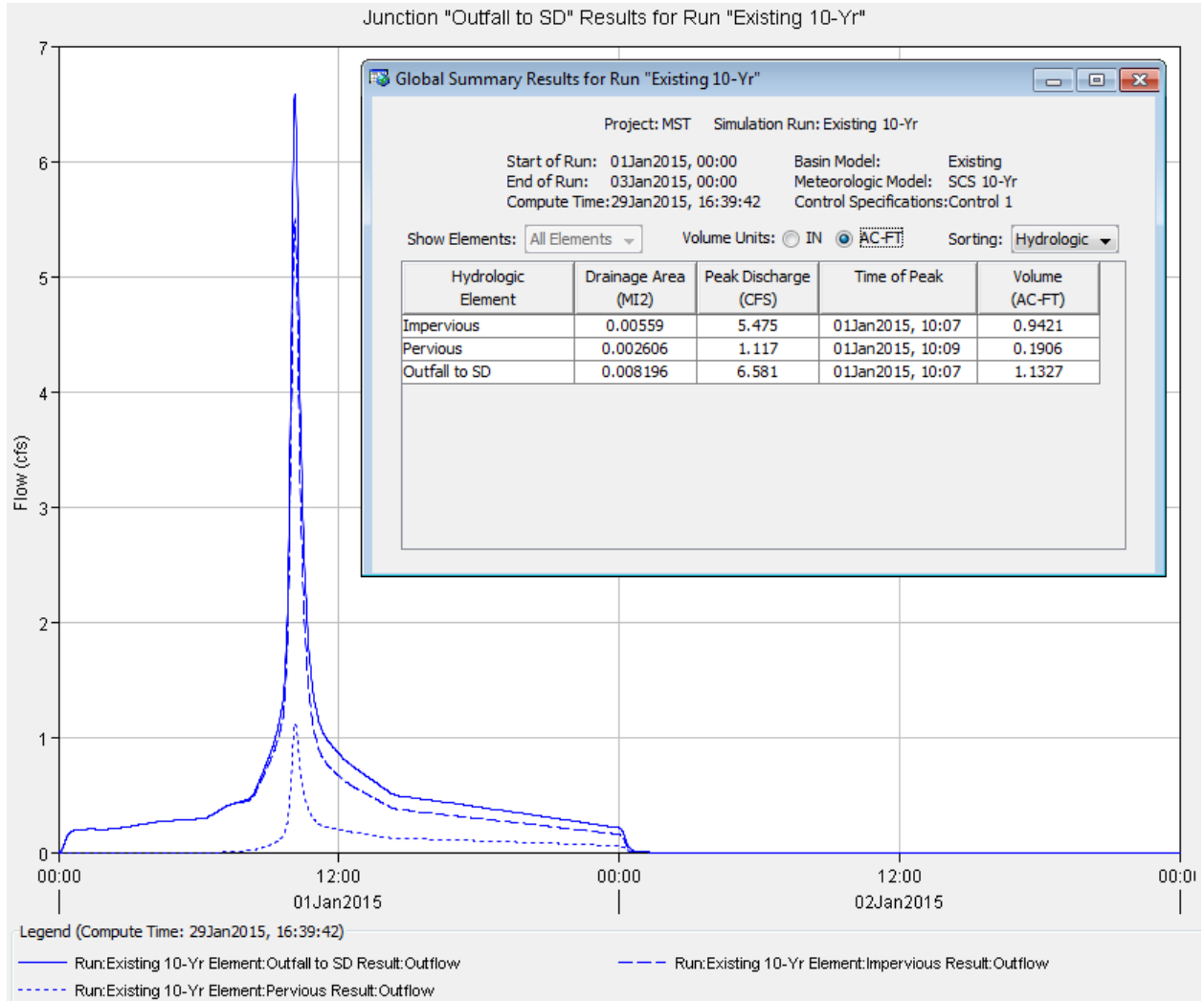


HEC-HMS Model Results

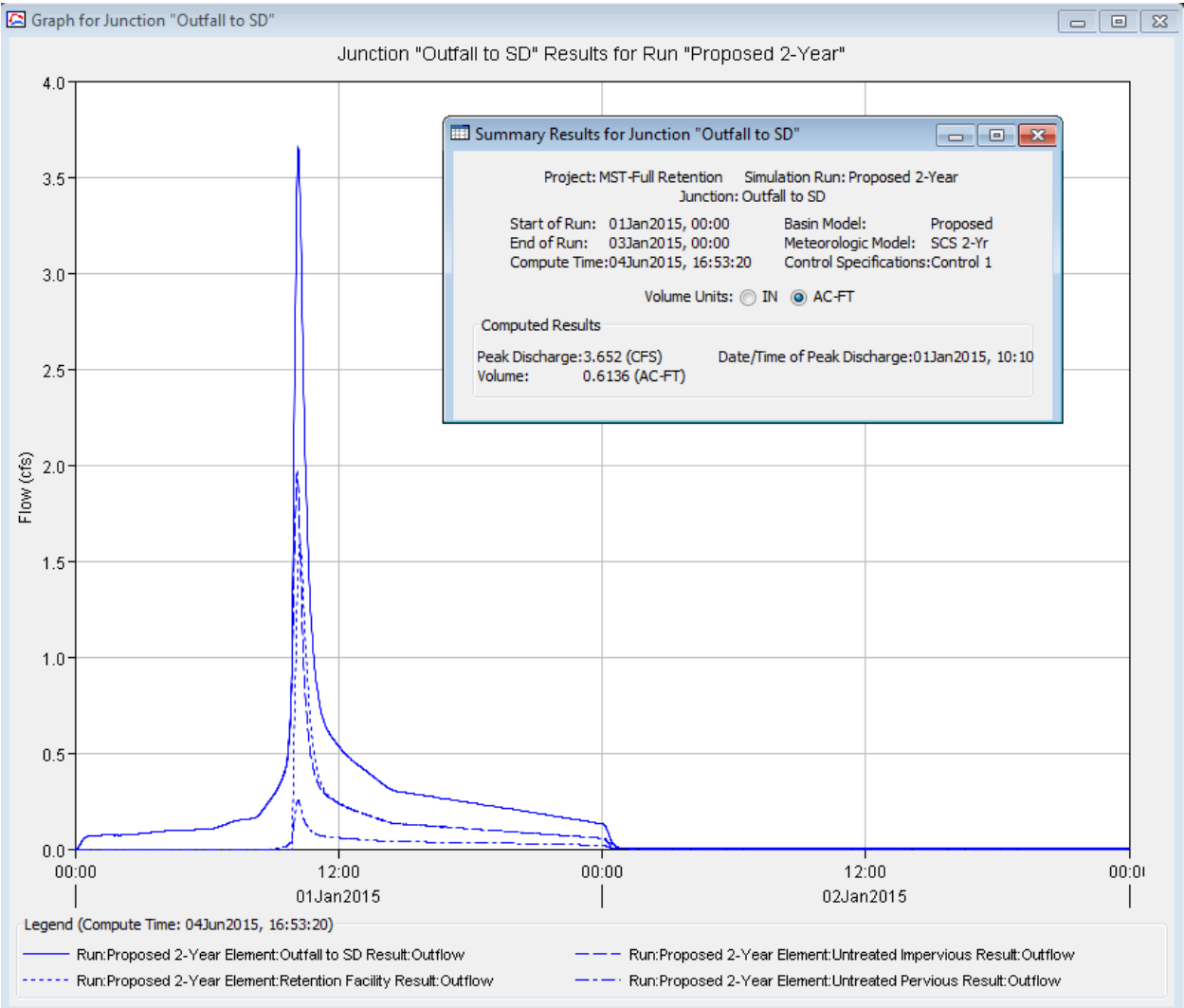
Existing Conditions, 2-Year Storm



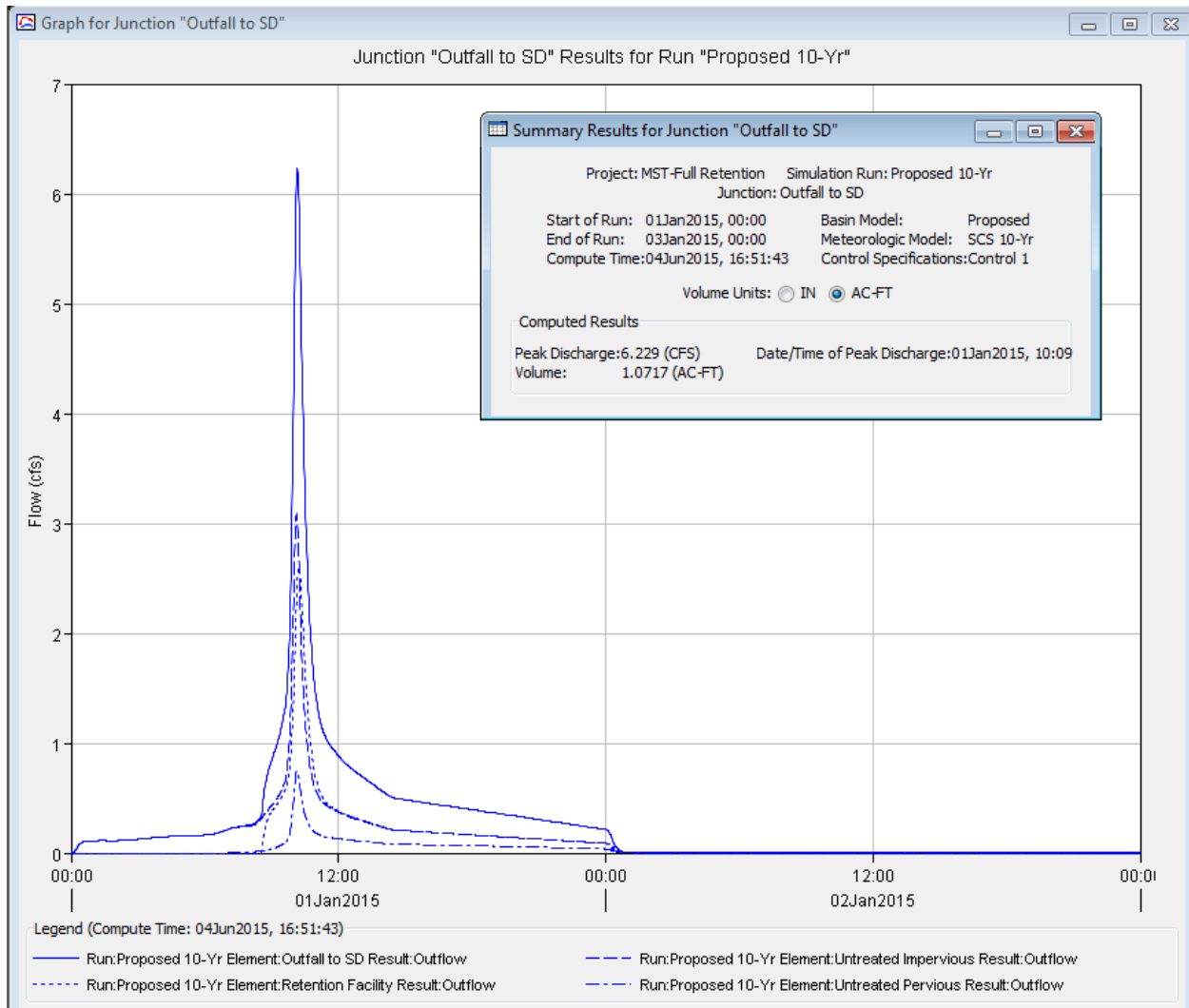
Existing Conditions, 10-Year Storm



Proposed Conditions, 2-Year Storm



Proposed Conditions, 10-Year Storm



Drainage Area Characteristics for HEC-HMS Analysis

Existing Conditions

	Area (s.f.)	Area (sq.mi.)
Project Site (subject parcel + lease area)	228,500	0.008196
Area Tributary to Sanitary Sewer	2,690	0.000096
Impervious Area*	153,814	0.005517
Remainder (Pervious Area)	71,996	0.002583
Total	228,500	0.008196

* does not include area tributary to sanitary sewer

Proposed Conditions

	Area (s.f.)	Area (sq. mi.)
Project Site (subject parcel + lease area)	228,500	0.008196
Area Tributary to Sanitary Sewer	5,525	0.000198
Impervious Area to Remain*	98,469	0.003532
New Impervious Area*	20,571	0.000738
Replaced Impervious Area*	54,385	0.001951
Removed Impervious Area (New Pervious Area)*	960	0.000034
Remainder (Pervious Area to Remain)	48,590	0.001743
Total	228,500	0.008196
Total New + Replaced Impervious Area*	74,956	0.002689
Total Impervious Area*	173,425	0.006221
Total Pervious Area*	49,550	0.001777

* does not include area tributary to sanitary sewer

Hydrologic Soil Group = D

Cover = Mix of Herbaceous and
Oak Woodland

Condition = Fair

SCS Curve Number = 80

Source: Urban Hydrology for
Small Watersheds
Technical Release 55 (TR-55)

Unit Conversions

s.f. per sq. mi. =

27,878,400

SCM Treatment Areas	IA (s.f.)	PA (s.f.)	Total (s.f.)	IA (sq. mi.)	PA (sq. mi.)	Total (sq. mi.)
Area Tributary to Sanitary Sewer	5,525	-	5,525	0.000198	-	0.000198
Area #1	12,521	-	12,521	0.000449	-	0.000449
Area #2	6,749	-	6,749	0.000242	-	0.000242
Area #3	16,032	-	16,032	0.000575	-	0.000575
Area #4	11,518	-	11,518	0.000413	-	0.000413
Area #5	30,410	1,690	32,100	0.001091	0.000061	0.001151
Area #6	4,935	2,235	7,170	0.000177	0.000080	0.000257
Total SCM Treatment Area	87,690	3,925	91,615	0.003145	0.000141	0.003286
Remaining (Untreated) Area	85,735	45,625	136,885	0.003075	0.001637	0.004910

Inversed Auger-Hole (Porchet) Method for Determining Field Saturated Hydraulic Conductivity (Kfs)

ATTACHMENT 'G'

Test Location P-1

Depth to Bottom of Proposed SCM:	Varies
Field Saturated Hydraulic Conductivity ¹ :	"slow"
Design Saturated Hydr. Conductivity ² :	0
¹ Higher rates in surficial soils discounted.	
² Taken as 1/2 of Field Saturated Hydr. Cond.	

Calc Method 1

$$I_t = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Source: Orange County TGD
(referenced in MRSWMP Technical Guidance)

Calc Method 2

$$K = 1.15 r \frac{\log(h_0 + \frac{1}{2}r) - \log(h_t + \frac{1}{2}r)}{t - t_0}$$

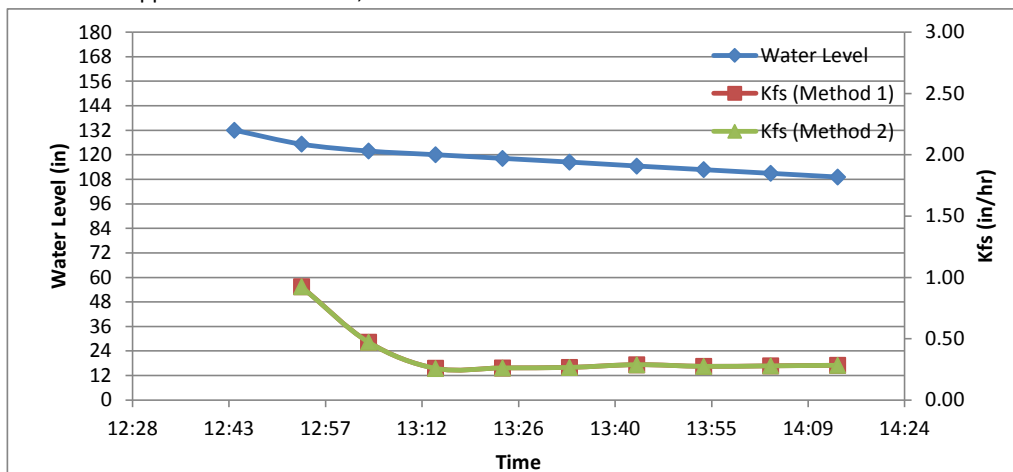
Source: Chapter 12 in: H.P.Ritzema (Ed.),
Drainage Principles and Applications

bore hole radius	8	inches
Casing	4	inches
Annual space rock porosity	0.4	--
effective bore hole radius	5.9	inches
bore hole depth	180	inches

P-1							Kfs	
Reading	Time (min)	dt (min)	Depth (in)	H (in)	dH inches	H _{avg} inches	Method 1 in/hr	Method 2 in/hr
0	12:44		47.95	132.05				
1	12:54	10	54.79	125.21	6.84	128.63	0.93	0.92
2	13:04	10	58.15	121.85	3.36	123.53	0.47	0.47
3	13:14	10	59.95	120.05	1.8	120.95	0.26	0.26
4	13:24	10	61.75	118.25	1.8	119.15	0.26	0.26
5	13:34	10	63.55	116.45	1.8	117.35	0.27	0.27
6	13:44	10	65.47	114.53	1.92	115.49	0.29	0.29
7	13:54	10	67.27	112.73	1.8	113.63	0.27	0.27
8	14:04	10	69.07	110.93	1.8	111.83	0.28	0.28
9	14:14	10	70.87	109.13	1.8	110.03	0.28	0.28

Note from percolation testing: "Slow percolation below 10.4' below ground surface."

Soil column appears to be all native, no fill.



Inversed Auger-Hole (Porchet) Method for Determining Field Saturated Hydraulic Conductivity (Kfs)

Test Location P-2

Depth to Bottom of Proposed SCM:	10' ~ 12'
Field Saturated Hydraulic Conductivity ¹ :	"slow"
Design Saturated Hydr. Conductivity ² :	0
¹ Higher rates in surficial soils discounted.	
² Taken as 1/2 of Field Saturated Hydr. Cond.	

Calc Method 1

$$I_t = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Source: Orange County TGD
(referenced in MRSWMP Technical Guidance)

Calc Method 2

$$K = 1.15 r \frac{\log(h_0 + \frac{1}{2}r) - \log(h_t + \frac{1}{2}r)}{t - t_0}$$

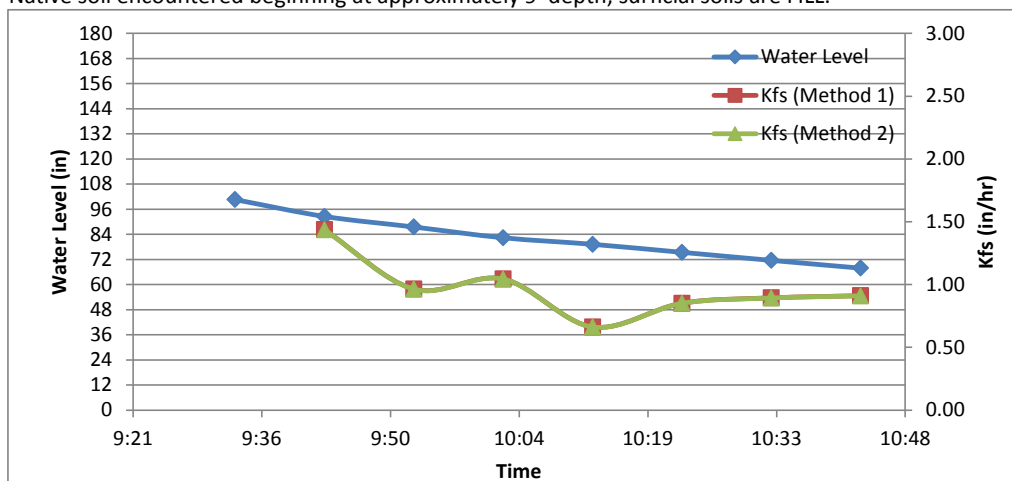
Source: Chapter 12 in: H.P.Ritzema (Ed.),
Drainage Principles and Applications

bore hole radius	8	inches
Casing	4	inches
Annual space rock porosity	0.4	--
effective bore hole radius	5.9	inches
bore hole depth	180	inches

P-2							Kfs	
Reading	Time (min)	dt (min)	Depth (in)	H (in)	dH inches	H _{avg} inches	Method 1 in/hr	Method 2 in/hr
0	9:33		79.4	100.6				
1	9:43	10	87.44	92.56	8.04	96.58	1.44	1.44
2	9:53	10	92.48	87.52	5.04	90.04	0.96	0.96
3	10:03	10	97.64	82.36	5.16	84.94	1.04	1.04
4	10:13	10	100.76	79.24	3.12	80.8	0.66	0.66
5	10:23	10	104.6	75.4	3.84	77.32	0.85	0.85
6	10:33	10	108.44	71.56	3.84	73.48	0.89	0.89
7	10:43	10	112.16	67.84	3.72	69.7	0.91	0.91

Note from percolation testing: "Slow percolation below 13.1' below ground surface."

Native soil encountered beginning at approximately 9' depth; surficial soils are FILL.



Inversed Auger-Hole (Porchet) Method for Determining Field Saturated Hydraulic Conductivity (Kfs)

Test Location P-3

Depth to Bottom of Proposed SCM:	10'~12'
Field Saturated Hydraulic Conductivity ¹ :	"slow"
Design Saturated Hydr. Conductivity ² :	0
¹ Higher rates in surficial soils discounted.	
² Taken as 1/2 of Field Saturated Hydr. Cond.	

Calc Method 1

$$I_t = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Source: Orange County TGD
(referenced in MRSWMP Technical Guidance)

Calc Method 2

$$K = 1.15 r \frac{\log(h_0 + \frac{1}{2}r) - \log(h_t + \frac{1}{2}r)}{t - t_0}$$

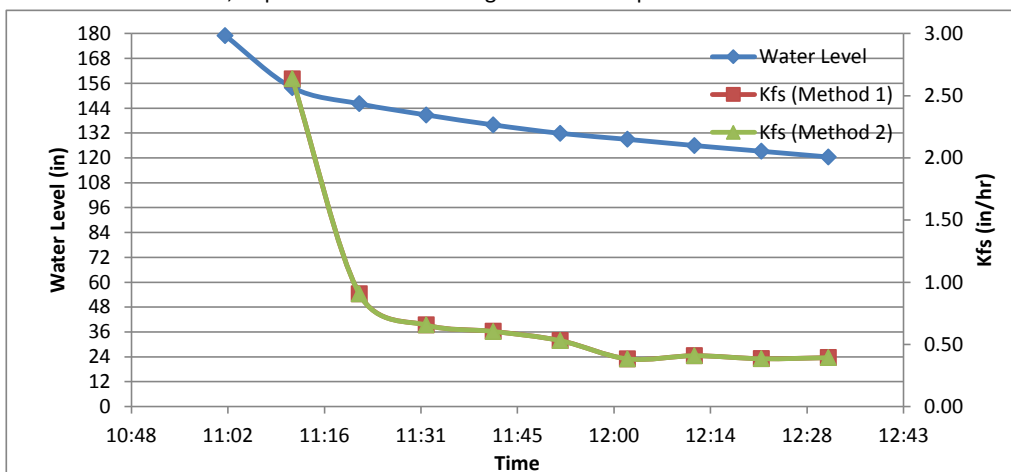
Source: Chapter 12 in: H.P.Ritzema (Ed.),
Drainage Principles and Applications

bore hole radius	8	inches
Casing	4	inches
Annual space rock porosity	0.4	--
effective bore hole radius	5.9	inches
bore hole depth	180	inches

P-3							Kfs	
Reading	Time (min)	dt (min)	Depth (in)	H (in)	dH inches	H _{avg} inches	Method 1 in/hr	Method 2 in/hr
0	11:02		1	179				
1	11:12	10	26.08	153.92	25.08	166.46	2.63	2.64
2	11:22	10	33.88	146.12	7.8	150.02	0.91	0.91
3	11:32	10	39.28	140.72	5.4	143.42	0.66	0.66
4	11:42	10	44.08	135.92	4.8	138.32	0.60	0.60
5	11:52	10	48.16	131.84	4.08	133.88	0.53	0.53
6	12:02	10	51.04	128.96	2.88	130.4	0.38	0.38
7	12:12	10	54.04	125.96	3	127.46	0.41	0.41
8	12:22	10	56.8	123.2	2.76	124.58	0.39	0.38
9	12:32	10	59.56	120.44	2.76	121.82	0.39	0.39

Note from percolation testing: "Slow percolation below 8.9' below ground surface."

Surficial soils are FILLS; depth of fill not noted in geotechnical report.



SOIL PERCOLATION TEST RECORDED MEASUREMENTS

OWNER/APPLICANT:	Monterey-Salinas Transit	PROJECT:	Monterey-Salinas Transit
SITE LOCATION:	1 Ryan Ranch Road, Monterey, CA	PROJECT NUMBER:	20153715
CONTACT/TELEPHONE:		DATE:	11/20/14 and 11/21/14
		REHS:	

HOLE #:	P-1	PRESATURATE DATE/TIME:	8:45:00 AM	11/20/2014
DIAMETER:	8 inches	PRESATURATE WATER DEPTH:	6.40	feet
HOLE DEPTH:	15.00 feet	HOLE DEPTH (Next Day) /TIME:	13.40	feet
SOIL TYPE:	Silty Sand and Clayey Sand	WATER DEPTH (Next Day):	10.39	feet

READING	DATE	TIME		WATER LEVEL (in)		ELAPSED TIME MIN.	WATER FALL INCHES	PERCOLATION RATE MINUTES/INCH*
		START	FINISH	START	FINISH			
1	11/21/2014	12:44	12:54	47.95	54.79	10	6.840	1.5
2	11/21/2014	12:54	1:04	54.79	58.15	10	3.360	3.0
3	11/21/2014	1:04	1:14	58.15	59.95	10	1.800	5.6
4	11/21/2014	1:14	1:24	59.95	61.75	10	1.800	5.6
5	11/21/2014	1:24	1:34	61.75	63.55	10	1.800	5.6
6	11/21/2014	1:34	1:44	63.55	65.47	10	1.920	5.2
7	11/21/2014	1:44	1:54	65.47	67.27	10	1.800	5.6
8	11/21/2014	1:54	2:04	67.27	69.07	10	1.800	5.6
9	11/21/2014	2:04	2:14	69.07	70.87	10	1.800	5.6

RATE: 5.6 min/in * Slow Percolation Below 10.4 feet bgs

HOLE #:	P-2	PRESATURATE DATE/TIME:	9:15:00 AM	11/20/2014
DIAMETER:	8 inches	PRESATURATE WATER DEPTH:	6.72	feet
HOLE DEPTH:	15.00 feet	HOLE DEPTH (Next Day) /TIME:	13.52	feet
SOIL TYPE:	Silty Sand and Clayey Sand	WATER DEPTH (Next Day):	13.05	feet

READING	DATE	TIME		WATER LEVEL (in)		ELAPSED TIME MIN.	WATER FALL INCHES	PERCOLATION RATE MINUTES/INCH*
		START	FINISH	START	FINISH			
1	11/21/2014	9:33	9:43	79.40	87.44	10	8.040	1.2
2	11/21/2014	9:43	9:53	87.44	92.48	10	5.040	2.0
3	11/21/2014	9:53	10:03	92.48	97.64	10	5.160	1.9
4	11/21/2014	10:03	10:13	97.64	100.76	10	3.120	3.2
5	11/21/2014	10:13	10:23	100.76	104.60	10	3.840	2.6
6	11/21/2014	10:23	10:33	104.60	108.44	10	3.840	2.6
7	11/21/2014	10:33	10:43	108.44	112.16	10	3.720	2.7

RATE: 2.7 min/in * Slow Percolation Below 13.1 feet bgs

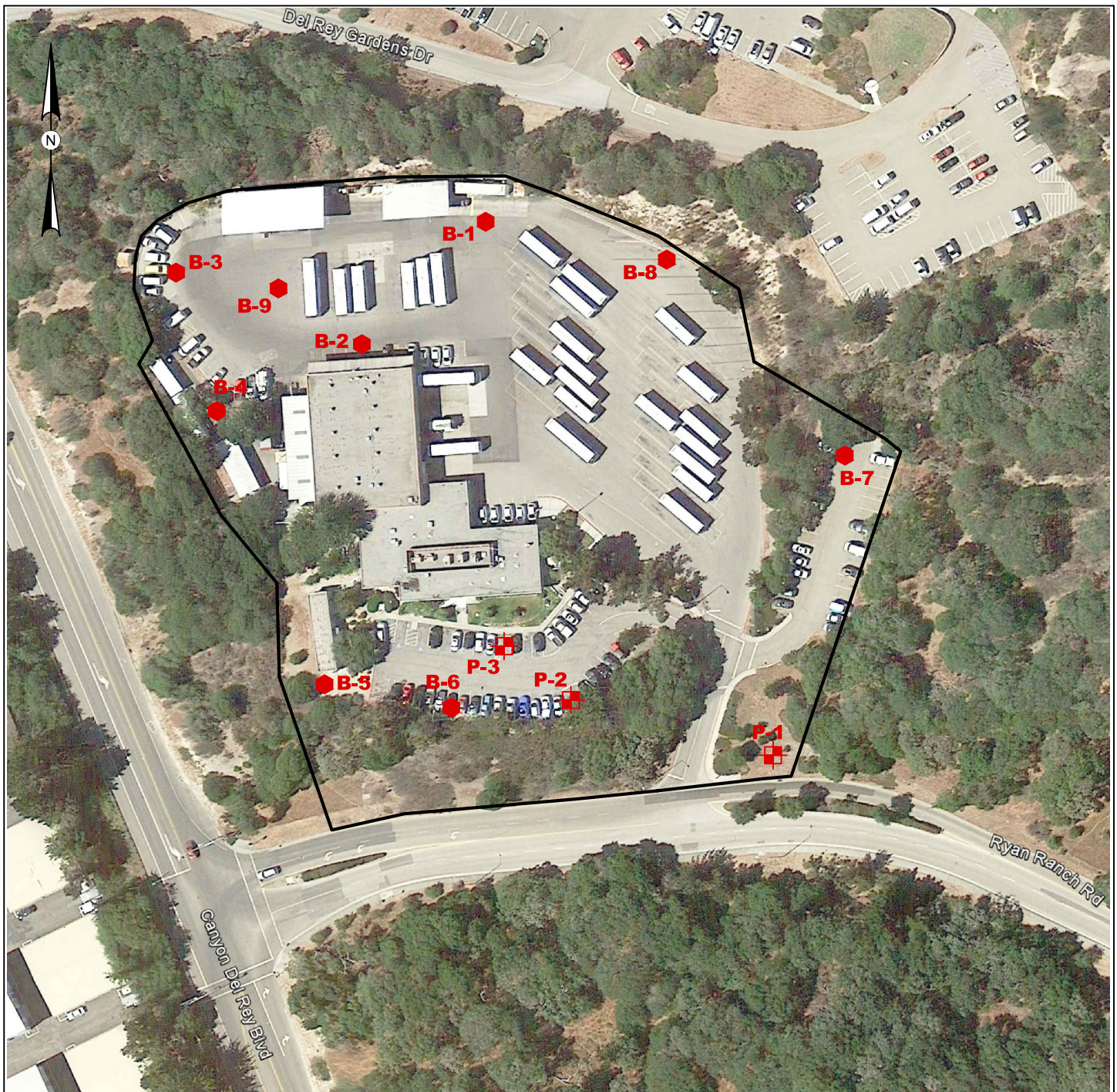
SOIL PERCOLATION TEST RECORDED MEASUREMENTS

OWNER/APPLICANT:	Monterey-Salinas Transit	PROJECT:	Monterey-Salinas Transit
SITE LOCATION:	1 Ryan Ranch Road, Monterey, CA	PROJECT NUMBER:	20153715
CONTACT/TELEPHONE:		DATE:	11/20/14 and 11/21/14
		REHS:	

HOLE #:	P-3	PRESATURATE DATE/TIME:	9:45:00 AM 11/20/2014
DIAMETER:	8 inches	PRESATURATE WATER DEPTH:	6.58 feet
HOLE DEPTH:	15.00 feet	HOLE DEPTH (Next Day) /TIME:	13.18 feet
SOIL TYPE:	Silty Sand and Clayey Sand	WATER DEPTH (Next Day):	8.86 feet

READING	DATE	TIME		WATER LEVEL (in)		ELAPSED TIME MIN.	WATER FALL INCHES	PERCOLATION RATE MINUTES/INCH*
		START	FINISH	START	FINISH			
1	11/21/2014	11:02	11:12	1.00	26.08	10	25.080	0.4
2	11/21/2014	11:12	11:22	26.08	33.88	10	7.800	1.3
3	11/21/2014	11:22	11:32	33.88	39.28	10	5.400	1.9
4	11/21/2014	11:32	11:42	39.28	44.08	10	4.800	2.1
5	11/21/2014	11:42	11:52	44.08	48.16	10	4.080	2.5
6	11/21/2014	11:52	12:02	48.16	51.04	10	2.880	3.5
7	11/21/2014	12:02	12:12	51.04	54.04	10	3.000	3.3
8	11/21/2014	12:12	12:22	54.04	56.80	10	2.760	3.6
9	11/21/2014	12:22	12:32	56.80	59.56	10	2.760	3.6

RATE: 3.6 min/in * Slow Percolation Below 8.9 feet bgs



0 100 200
 SCALE: 1" = 100' SCALE IN FEET

REFERENCE:
 Google Earth Pro, Imagery date 8/25/2013

LEGEND



PROJECT AREA



SOIL BORING
 (By Kleinfelder, 11/2014)



PERCOLATION TEST
 (By Kleinfelder, 11/2014)

NOTE: ALL LOCATIONS ARE APPROXIMATE

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PROJECT NO. 20153715
 DRAWN BY: JDS
 CHECKED BY: BH
 DATE: 12-08-2014
 REVISED:

SITE PLAN

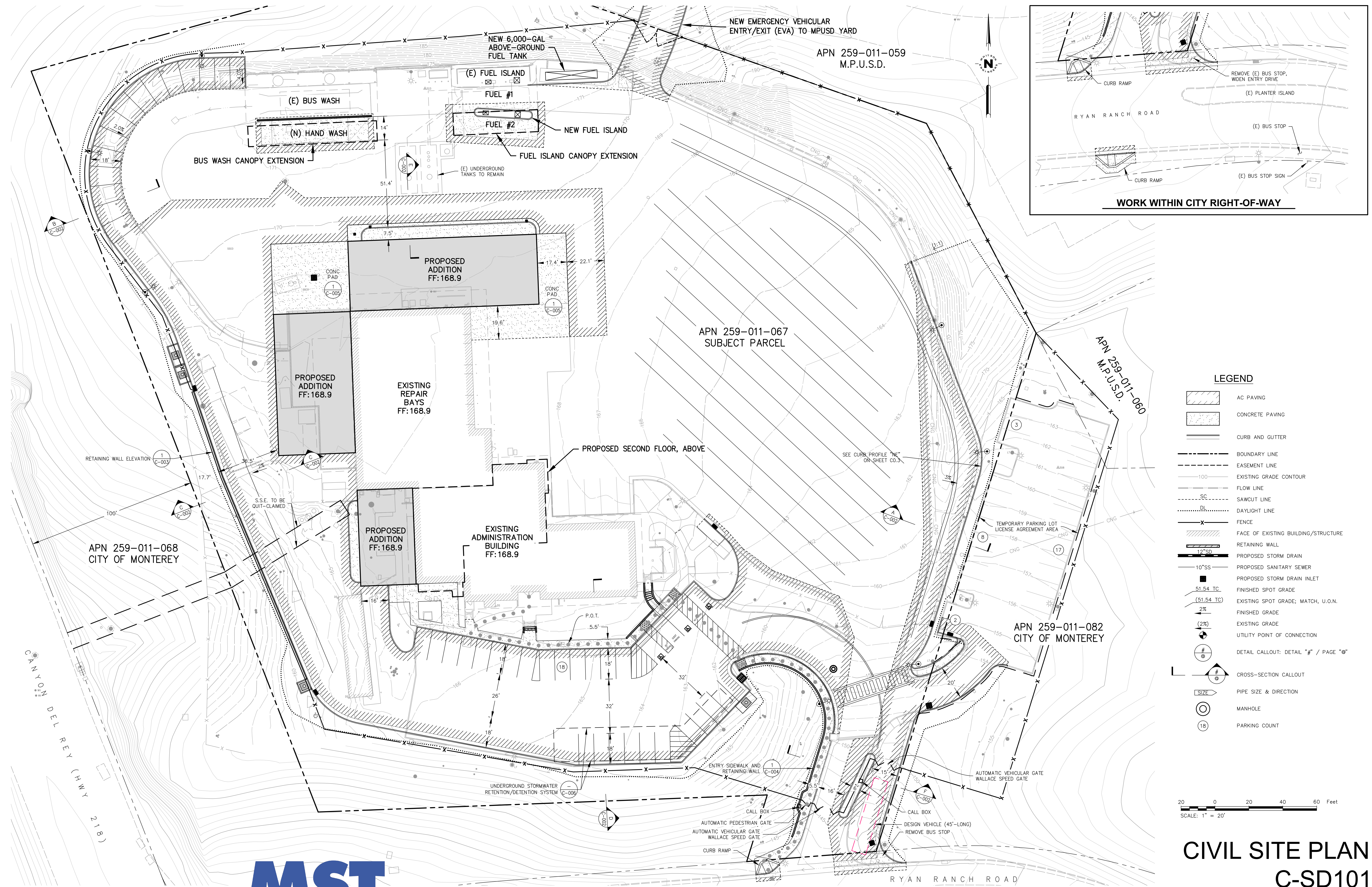
MONTEREY - SALINAS TRANSIT DISTRICT
 OPERATION & MAINTENANCE FACILITY
 1 RYAN RANCH ROAD
 MONTEREY, CALIFORNIA

PLATE

2

APPENDIX B

**Revised Figures – Revised Plan Sheets C-SD101 (Civil Site Plan)
and A-1-SD101 (SD-OMF First Floor Plan – Phase 2), Revised
Figure 3 (Site Plan from Draft IS/MND), and Revised Figure 6
(Grading and Drainage Plan)**



MST
MONTEREY-SALINAS TRANSIT

CIVIL SITE PLAN
C-SD101

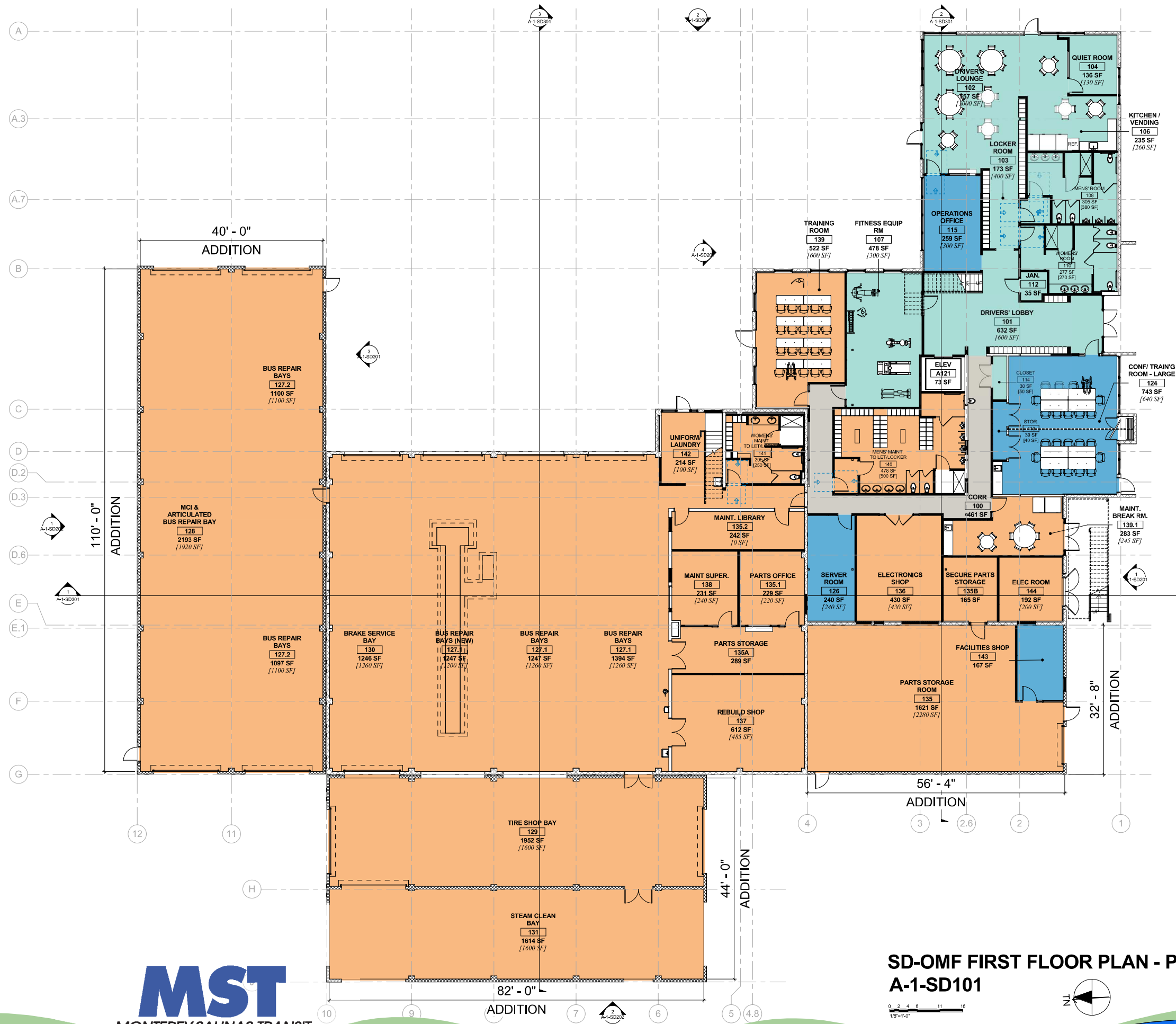
REVISED 6/8/15

01/30/15 AECOM #60327313 WE #3055.05

Operations & Maintenance Facility
Expansion & Remodel

SCHEMATIC DESIGN MILESTONE

WE WHITSON
ENGINEERS **AECOM**



GENERAL SCOPE NOTES

- EXTERIOR SHELL
A. WALLS: (E) CMU SHALL REMAIN TYP UON.
(N) WALLS PER LEGEND.
B. OPENINGS: PROVIDE ALL NEW DOORS, WINDOWS, AND SKYLIGHTS TYP, INCLUDING WITHIN (E) OPENINGS WHERE OCCURS, TYP UON.
C. FLOOR: (E) CONCRETE SLAB SHALL BE RE-USED THROUGHOUT, EXCEPT WHERE CUTS ARE REQUIRED FOR UNDERGROUND INSTALLATIONS. FILL IN PIT WITH COMPACTED GRAVEL AND CONCRETE TOPPING SLAB TO MATCH (E) SLAB.
D. ROOF: (N) ROOFING & ROOF FRAMING THROUGHOUT, EXCEPT ABOVE AREA B4.1, B6.1 & 6.2. CONSTRUCT (N) ROOF ABOVE (E) ROOF FRAMING TO REMAIN
- INTERIOR
A. PARTITIONS: PROVIDE NEW PER PLANS.
B. LIGHTING: REMOVE/REPLACE ALL.
C. CEILINGS: REMOVE/REPLACE ALL EXCEPT AT AREA B4.2 AND AT (E) MEZZANINE.
D. FLOORING: REMOVE/REPLACE ALL. RE-SEAL (E) EXPOSED CONCRETE FLOORS.
- POWER - ALL MAIN POWER EQPT. & DISTRIBUTION TO BE REPLACED. (E) GENERATOR TO BE RELOCATED, INCREASE MAIN ELECTRICAL SERVICE CAPACITY
- CONTROLS - REPLACE ALL CONTROL EQPT. PROVIDE (N) SECURITY ALARM, CAMERAS AND DOOR ACCESS CONTROLS.
FIRE PROTECTION - PROVIDE (N) FIRE ALARM, AND MODIFY (E) SPRINKLER SYSTEM.
- HVAC - RE-USE 2 (E) ROOFTOP PKG UNIT AND (E) ONE MINI-SPLIT AC SYSTEM. PROVIDE 2 (N) PKG UNITS WITH VAV BOXES (FOR A TOTAL OF 4 RTU'S) AND PROVIDE NEW EXHAUST SYSTEM THROUGHOUT. PROVIDE GAS-FIRED RADIANT HEATERS IN SERVICE BAYS, TYP. PROVIDE ALL NEW DUCTING, GRILLES, AND RELATED HVAC COMPONENTS.
- PLUMBING - REMOVE/REPLACE ALL FIXTURES. REPLACE (E) WATER SERVICE AND INCREASE TO 3" MAIN SERVICE
- INDUSTRIAL FLUIDS PIPING - REMOVE/REPLACE ALL PIPING, PUMPS, AND STORAGE TANKS. PROVIDE MONITORING AND LEAK DETECTION.

WALL TYPES LEGEND

- (E) CMU WALL TO REMAIN
- (E) FRAMED WALL TO REMAIN
- (N) CMU WALL
- (N) METAL STUD WALL

DEPARTMENT LEGEND

- DRIVER AREA
- MAINTENANCE GROUP
- OPERATIONS
- SHARED CIRCULATION

**SD-OMF FIRST FLOOR PLAN - Phase 2
A-1-SD101**



**Operations & Maintenance Facility
Expansion & Remodel**

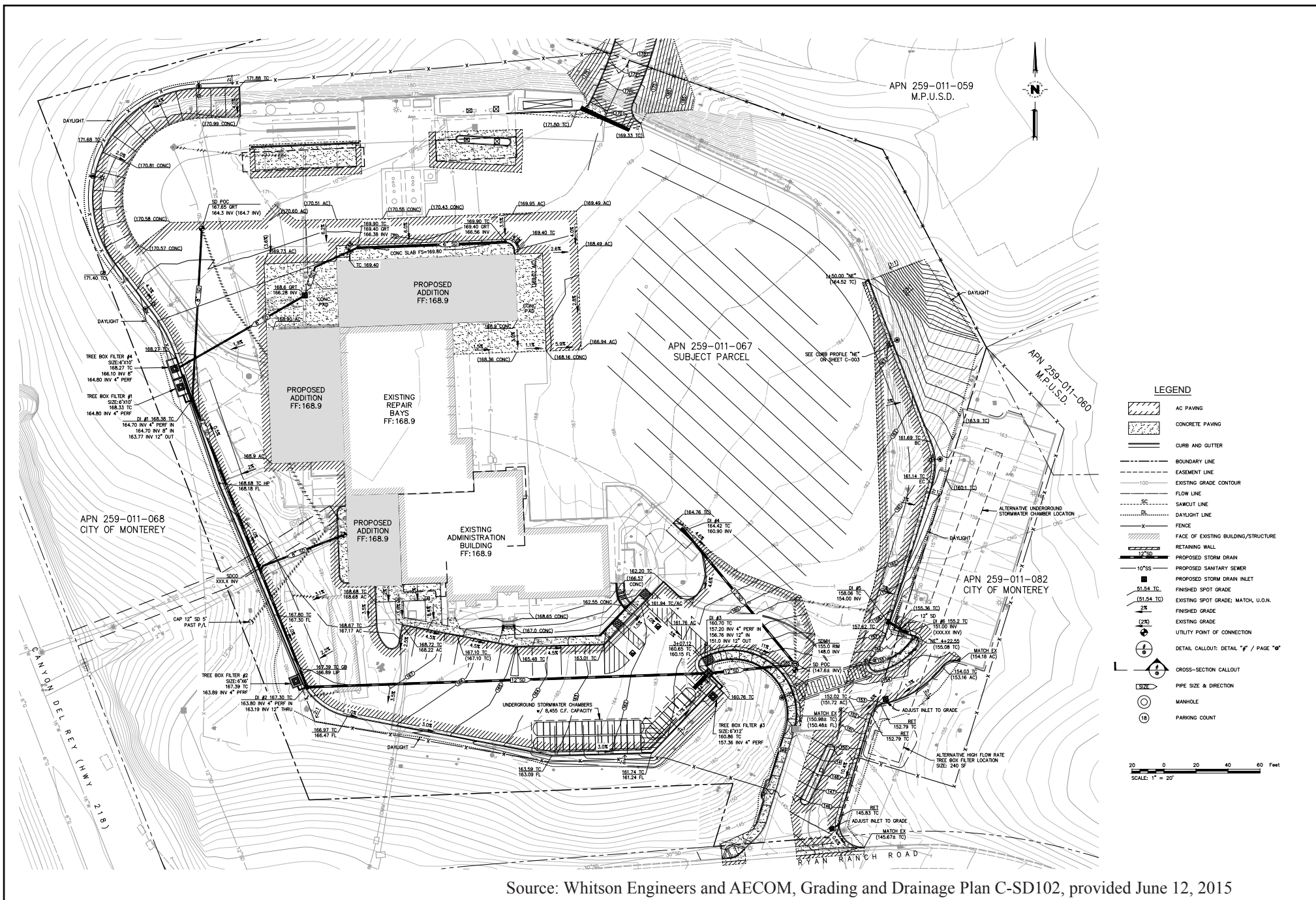
SCHEMATIC DESIGN MILESTONE

REV	DESCRIPTION	DATE
1	ISSUE FOR PERMIT	FEB 12, 2015
2	USE POINT	DATE
3	ARCH REVIEW	DATE



C:\Users\mst\Documents\SD-OMF_A-1-SD101.dwg

60327313



MST Monterey Bay Operations and Maintenance Facility Grading and Drainage Plan

File Pathway: P:\DDA Current Projects\2014-30 MST Expansion Project (MST TDA Facility ISMND)\IS MND\Admin Draft IS MND_MST FDA Expansion\Figures

Date: 6/25/2015

Scale: N/A

Project: 2014-30



Denise Duffy and Associates, Inc.

Environmental Consultants Resource Planners

947 Cass Street, Suite 5
Monterey, CA 93940
(831) 373-4341

Figure
6

APPENDIX C
Monterey-Salinas Transit – Water Use Analysis for the Monterey
Operations and Maintenance Facility Renovation and Expansion
Project (as amended, June 24, 2015)

MEMORANDUM

DATE: June 24, 2015

TO: Lisa Rheinheimer – MST

FROM: Nathaniel Milam, P.E.
Richard Weber, P.E.

Cc: Carl Wulf – MST
Rob McKie – AECOM

SUBJECT: Monterey Salinas Transit – Water Use Analysis for the Monterey Operations and Maintenance (TDA) Facility Renovation and Expansion Project

Introduction

Pursuant to our contracted scope of work, Whitson Engineers has:

1. Estimated the site's water use based on Monterey Peninsula Water Management District guidelines;
2. Reviewed and analyzed the site's actual historic water use;
3. Developed an alternative estimate for existing water use;
4. Estimated post-project water use; and
5. Prepared this Memorandum.

MPWMD Water Use Calculation

The project site is located within the Monterey Peninsula Water Management District (MPWMD) service area. We are not aware of any existing site water allocation restrictions associated with the subject property. Based upon actual meter readings over the past 5 years, the site used on average 2.61 AFY.

MPWMD requires project applicants to complete the worksheet entitled "Non-Residential Water Use Factors" dated 7/1/2014. Projected capacity for water use is calculated based on building floor area, Group (use category) and landscape irrigation demand.

Group I uses have the lowest water use factor, 0.00007 acre feet per year (AFY) per square foot of building floor space. Group II includes relatively high water demand foodservice uses, such as bakeries and coffee shops, and is assigned a factor of 0.00020 AFY/SF.

Select use categories, such as dog grooming facilities, dormitories, laundromats, meeting halls, and plant nurseries, are assigned to Group III and are assigned various water use rates. Landscape irrigation is the only Group III category that would apply to the MST site. Landscape water use is calculated as Estimated Total Water Use (ETWU), based on irrigated area, climate, landscape water needs, and irrigation efficiency. ETWU calculations for both existing and proposed site conditions are provided in Appendix A.

The Group IV category is assigned to a site if it has applied for and received a Water Use Credit for a permanent reduction in use. This occurs if an applicant proposes to expand a building or change a use and the resulting Water Use calculation exceeds the site's allotment.

A fifth Group, "Other", is "any Non-Residential water use which cannot be characterized by one of the use categories set forth ..." The water use capacity for such sites is "assigned a factor which has a positive correlation to the anticipated Water Use Capacity for that Site." **This is the approach utilized for this analysis.**

The "Other" category appropriately accounts for the anticipated water use for the proposed project since the proposed use is not specifically accounted for in any of the MPWMD Group designations. The actual water usage will establish the baseline comparison for the existing uses and the proposed anticipated use. If in the future the use of the site changes through a use permit, the projected capacity would be reevaluated for the appropriate future use.

The Operations and Maintenance Facility Project, though expanding in physical size, will actually result in an anticipated reduction in the water usage due to the change in use from a more multi-use office and maintenance environment to a pure city bus maintenance focused environment. The number of buses being housed at the facility is proposed to increase, however the size of the fleet remains unchanged. The number of buses served by the facility will increase slightly. The additional buses are currently in the fleet and are just being relocated to this facility. The total number of employees working at the site will actually decrease. The decrease is due to the relocation of the vast majority of the Administrative and Management staff to a different facility. Lastly, drivers reporting to the facility subsequently leave for their route and are only on site for a short duration. The drivers primarily use off-site facilities as they are unable to return back to the facility during shift breaks. Even with this consideration, we did include in our calculation a reduced water usage of 10 GPD for this employment category vs. 17 GPD for a typical on-site, 8 hour shift employee.

The number of maintenance staff, including mechanics, will increase from 14 to 24 staff-shifts). This increase of 10 staff-shifts is offset by the reduction of 16 of the 30 full-time Administrative staff being moved to another location.

Actual Historic Water Use

The Operations and Maintenance facility is currently served by California American Water via a single 2"-diameter water service and a 2" commercial meter. This provides service for the entire site, including domestic, irrigation, and industrial uses. A second 6" fire service with a detector-check meter serves the site's fire system, and is not considered in this analysis.

The Cal Am water meter readings were provided by MST for the period of June 2009 to May 2014 (5 years total). Annual water use averaged 2.61 AFY and ranged from 2.33 to 2.99 AFY. Monthly usage is provided in Appendix B.

Table 2. Site Water Use, 2009 - 2014

	Site Water Use, Gallons per Day (GPD)	Site Water Use, Acre-Feet per Year (AFY)
June 2009 – May 2010	2,382	2.67
June 2010 – May 2011	2,670	2.99
June 2011 – May 2012	2,050	2.30
June 2012 – May 2013	2,421	2.71
June 2013 – May 2014	2,123	2.38
Average	2,329	2.61

Private sub-meters were installed by MST in August of 2013 in order to better understand the distribution of water use on site. One meter was installed at the steam rack, and a second meter was installed on the line feeding the bus wash and nearby hose bibs. These metered uses are provided in Table 3, below. Note the Bus Wash sub-meter readings were for a period of only 6 months due to a faulty meter which failed in December of 2013.

Table 3. Sub-Meter Readings

Meter	Reading Interval	Average Use (GPD)	Average Use (AFY)
Steam Rack	8/13/13 – 1/27/15	179	0.20
Bus Wash Meter	8/13/13 – 12/6/13	732 (11-12 buses/day @ 62 gal/bus)	0.82
Total		911	1.02

Existing Water Use Estimated Break-Down

Table 4, below, provides an estimated break-down of water uses within the existing site. The overall site, bus wash, and steam rack demands are based on the actual metered uses. Exterior (irrigation) use is estimated based on the site's landscaped area. The remainder of the site's use is assigned to interior (domestic) use.

Table 4. Existing Site Water Demand Estimate

Use	Calculation	Demand (AFY)
Interior (Domestic) Use	See Table 5, below	1.27
Exterior (Irrigation) Use	See MAWA Calculation, Appendix A.	0.32
Bus Wash	730 GPD (based on sub-meter readings)	0.82
Steam Rack	180 GPD (based on sub-meter readings)	0.20
Total		2.61

It is necessary to estimate per-capita demands for the interior water use in order to correlate existing use to anticipated post-project water use. Table 5 provides the estimated use based on the number of employees and shifts per day. Because the interior use is back-calculated from actual meter readings, the demand per employee is considered to be a more representative estimate in this circumstance than one which would rely on the "typical" formulaic use factor for Group I.

Table 5. Existing Interior Water Demand Estimate

Category	Staff-Shifts per Day	Demand per Staff-Shift	Total (AFY)
Bus Driver (3.5-hr shift)	35	10 GPD	0.39
Office Staff (8-hr shift)	30	17 GPD	0.57
Mechanic (8-hr shift)	14	17 GPD	0.27
Other ¹ (equivalent 8-hr shift)	2	17 GPD	0.04
Total	81		1.27

¹ Miscellaneous deliveries and visitors are approximated as equivalent to two 8-hour shifts.

Post-Project Water Use Estimate

The proposed water use is calculated using the same basis as the existing site water demand, and is presented in Table 6.

Table 6. Proposed Site Water Demand Calculation

Use	Calculation	Demand (AFY)
Interior (Domestic) Use	See Table 7, below	1.32
Exterior (Irrigation) Use	See MAWA Calculation, Appendix A.	0.20
Bus Wash	730 GPD (14-15 buses/day @ 50 gal/bus)	0.82
Steam Rack	180 GPD	0.20
Total		2.54

Table 7. Proposed Interior Water Demand Estimate

Category	Staff-Shifts per Day	Demand Per Staff-Shift	Total, AFY
Bus Driver (3.5-hr shift)	40	10 GPD	0.45
Office Staff (8-hr shift)	14	17 GPD	0.27
Maintenance Staff (8-hr shift)	24	17 GPD	0.46
Other (equivalent 8-hr shift) ¹	8	17 GPD	0.15
Total	86		1.32

¹ Deliveries, visitors, and training classes. Miscellaneous deliveries and visitors are approximated as equivalent to two 8-hour shifts. In addition, classes of 8 to 15 new operators are proposed. Classes are assumed to last 6 weeks and would occur on a 12 week schedule, so are approximated as equivalent to six regular 8-hour shifts.

Conclusion

Although the facility is proposed to be expanded from approximately 18,364 SF to 31,604 SF (a 72% increase), the long term staffing at the site is not proposed to change significantly (+6%). This is due to administrative office personnel being relocated to a different facility and replaced with maintenance staff and bus drivers. This results in only a negligible anticipated increase in the interior water demand of 0.05 AFY.

The project will reduce the irrigated areas in addition to removing the existing lawn area, replacing it with low-water use landscaping. Thus, the exterior (irrigation) demand is estimated to be reduced from approximately 0.32 AFY to approximately 0.20 AFY; a 0.12 AFY reduction.

As part of the project, MST will be replacing the existing mechanical bus wash and steam wash systems with systems of equal or greater efficiency as the existing systems. MST is committed to operating the bus wash and steam rack water under the same process and protocol currently employed. The total number of buses washed per day will remain unchanged, and water usage will remain at or below current levels. Steam cleaning and bus washing frequency may, however, be proportionally increased if efficiencies are gained by the new, modern equipment which is yet to be specified. However, the overall water demand will remain at or below existing use.

With all these factors considered, the overall site water usage is anticipated to be slightly reduced from an average of 2.61 AFY to an estimated use of 2.54 AFY or a 0.07 AFY net reduction.

Appendix A. Exterior Non-Residential Water Demand

Exterior Non-Residential Water Demand (landscape irrigation) is estimated as follows:

$$\text{Estimated Total Water Use, ETWU (AFY)} = (\text{ETo}) (0.62) [\text{PF} \times \text{HA} / \text{IE} + \text{SLA}]$$

The existing irrigation demand is estimated based on the existing lawn (turf) area shown on the project topographic map, and an estimated 5,000 SF of drip irrigation.

ETo= 36.0 inches

0.62 = factor to convert inches to gallons per square foot

PF= Plant Factor = 0.8 (turf), 0.3 (other areas)

HA= Hydrozone Area = 1,850 SF (turf), 5,000 SF (other areas)

IE= Irrigation Efficiency= 0.5 (turf), 0.85 (other areas)

SLA= Special Landscape Area= 0

$$= (36.0) (0.62) (0.8 \times 1,850 / 0.5 + 0.3 \times 5,000 / 0.85 + 0)$$

$$= 105,000 \text{ gallons/year} = 0.32 \text{ AFY}$$

Approximately 0.2 AFY of the total 0.3 AFY demand is attributable to lawn irrigation.

The proposed irrigation demand is estimated based on the irrigation plans, and is calculated as follows:

ETo= 36.0 inches

0.62 = factor to convert inches to gallons per square foot

PF = Plant Factor = 0.3 (native, drought tolerant landscaping)

HA = Hydrozone Area = 8,600 SF

IE = Irrigation Efficiency = .85 (drip irrigation)

SLA = Special Landscape Area = 0

$$= (36.0) (0.62) (0.3 \times 8,200 / 0.85 + 0)$$

$$= 64,600 \text{ gallons/year} = 0.20 \text{ AFY}$$

Appendix B. Metered Water Use, 2010 – 2014

MST TDA Facility					
		Commercial Service Meter			
Mon-Yr	Days (prior month)	Reading, 100 CF	Reading, 10 CF	Gallons (prior month)	gpd
Jun-09	31	106	1060	79,500	2565
Jul-09	30	116	1160	87,000	2900
Aug-09	31	104	1040	78,000	2516
Sep-09	31	108	1080	81,000	2613
Oct-09	30	106	1060	79,500	2650
Nov-09	31	81	810	60,750	1960
Dec-09	30	85	850	63,750	2125
Jan-10	31	94	940	70,500	2274
Feb-10	31		922	69,150	2231
Mar-10	28		988	74,100	2646
Apr-10	31		835	62,625	2020
May-10	30		848	63,600	2120
Jun-10	31		1214	91,050	2937
Jul-10	30		1510	113,250	3775
Aug-10	31		1375	103,125	3327
Sep-10	31		1445	108,375	3496
Oct-10	30		1358	101,850	3395
Nov-10	31		1256	94,200	3039
Dec-10	30		1182	88,650	2955
Jan-11	31		597	44,775	1444
Feb-11	31		661	49,575	1599
Mar-11	28		710	53,250	1902
Apr-11	31		714	53,550	1727
May-11	30		971	72,825	2428
Jun-11	31		1006	75,450	2434
Jul-11	30		857	64,275	2143
Aug-11	31		857	64,275	2073
Sep-11	31		987	74,025	2388
Oct-11	30		843	63,225	2108
Nov-11	31		765	57,375	1851
Dec-11	30		862	64,650	2155
Jan-12	31		702	52,650	1698
Feb-12	31		696	52,200	1684
Mar-12	28		838	62,850	2245
Apr-12	31		795	59,625	1923
May-12	30		770	57,750	1925

Jun-12	31		790	59,250	1911
Jul-12	30		931	69,825	2328
Aug-12	31		1315	98,625	3181
Sep-12	31		1162	87,150	2811
Oct-12	30		927	69,525	2318
Nov-12	31		634	47,550	1534
Dec-12	30		704	52,800	1760
Jan-13	31		636	47,700	1539
Feb-13	31		769	57,675	1860
Mar-13	28		789	59,175	2113
Apr-13	31		1886	141,450	4563
May-13	30		1241	93,075	3103
Jun-13	31		1256	94,200	3039
Jul-13	30		964	72,300	2410
Aug-13	30		816	61,200	2040
Sep-13	30		1025	76,875	2563
Oct-13	30		887	66,525	2218
Nov-13	30		0	-	0
Dec-13	30		0	-	0
Jan-14	30		713	53,475	1783
Feb-14	30		755	56,625	1888
Mar-14	30		789	59,175	1973
Apr-14	30		1886	141,450	4715
May-14	30		1241	93,075	3103
Jun-14	31		995		
Jul-14	30				
Aug-14	31				
Sep-14	31				
Oct-14	30				
Nov-14	31				
Dec-14	30				
Jan-15	31				
Feb-15	31				
Mar-15	28				
Apr-15	31				
May-15	30				
Maximum			1,886	141,450	4,715
Average			945	70,850	2,334
Minimum			-	-	-
Annual Totals					
			Gallons	gpd	AFY
Total Usage, Jun 2009 - May 2010			869,475	2,382	2.67
Total Usage, June 2010 - May 2011			974,475	2,670	2.99
Total Usage, June 2011 - May 2012			748,350	2,050	2.30
Total Usage, June 2012 - May 2013			883,800	2,421	2.71
Total Usage, June 2013 - May 2014			774,900	2,123	2.38
Average			850,200	2,329	2.61

Appendix C. Comparison to the Site's 2012 Water Use Survey

We were provided a recent Water Use Survey Report (Survey) for the site by MST, as a point of comparison to the current Study. The Survey was completed by WaterWise Consulting, Inc. in early 2012 for California American Water. The annual metered water use used for the Survey was 2.33 AFY.

Table 7, below, is adapted from Appendix A of the Survey. The Survey does not describe how the individual water uses on the site were estimated, and therefore we are not able to comment on the accuracy of the estimated break-down. Table A2 provides the direct comparison to the estimates provided in the Survey, and those used in this Study.

*Table A1. Existing Water Use Estimate from the 2012 Water Use Survey
(adapted from Appendix A of the Water Use Survey)*

Existing Site Uses	Number	Demand	Annual Use (gallons)	Annual Use (AFY)
Interior Uses			209,665	0.64
Tank Toilet	2	1.6 gpf	16,007	0.05
Flush Valve Toilet	4	1.6 gpf	37,849	0.12
Waterless Urinal	2	0	0	0.00
Regular Showerhead	2	2.5 gpm	10,023	0.03
Lavatory Faucet Aerator	1	2.0 gpm	10,921	0.03
Lavatory Faucet Aerator	3	2.2 gpm	39,943	0.12
Lavatory Faucet Aerator	2	3.5 gpm	21,019	0.06
Drinking Fountain	1	1.0 gpm	5,460	0.02
Bathroom Cleaning Activities	-	-	3,291	0.01
Breakroom Faucet	3	2.2 gpm	12,043	0.04
Eye Wash Stations	4	3.0 gpm	150	0.00
Shop/Utility Faucets	2	7.0 gpm	25,582	0.08
Shop Handwash Basin	1	5.0 gpm	27,377	0.08
Landscape Irrigation	-	-	32,014	0.10
Other			517,541	1.59
Steam Sprayer	1	0.5 gpm	43,833	0.13
Bus Washer	1	42.5 gpm	421,124	1.29
Hose Spigots (with positive shut-off nozzles)	4	3.0 gpm	52,584	0.16
Total			759,220	2.33

Table A2. Comparison of Results

Existing Site Uses	2012 Water Use Survey (AFY)	Existing Use in This Study (AFY)
Interior Uses	0.64	1.27
Landscape Irrigation	0.10	0.32
Other	1.59	1.02
Total	2.33	2.61

Appendix D. MPWMD Water Use calculation based on building and irrigated areas

Table D1, below, provides the site's Water Use Capacity based on MPWMD Water Use factors alone. Note that the estimated 1.61 AFY Water Use Capacity is significantly less than the 2.61 AFY actually used at the site, but correlates well to the 1.59 AFY estimated for the existing Interior (domestic) and Exterior (irrigation) Uses.

Table D1. MPWMD Water Use Calculation for Existing Conditions

Category	Area (SF)	Factor (AFY/SF)	Total (AFY)
Interior Non-Residential Water Demand, Group I	18,364	0.000070	1.29
Exterior Non-Residential Water Demand, Group III			
Lawn (Sprinkler Irrigated)	1,800	See	0.32
Other Areas (Drip Irrigated)	6,000	App. A	
Total			1.61