Meeting of the Central Valley Flood Protection Board
April 27, 2012

Staff Report (Final)

Sacramento Regional Transit District
South Sacramento Corridor Phase 2 Project

1.0 – ITEM

Consider approval of Permit No. 18166-2 (Attachment A).

2.0 – APPLICANT

Sacramento Regional Transit District (RT)

3.0 – LOCATION

The project, referred to as South Sacramento Corridor Phase 2 Project, is located in south Sacramento along Morrison and Unionhouse House Creeks (Attachment B).

4.0 – DESCRIPTION

The applicant proposes to extend its South Line light rail transit (LRT) system from its current terminus at Meadowview Road to Cosumnes River College. The planned 4.3 mile LRT extension route can be divided into five segments.

Segment #1. The LRT extension route starts at the existing Meadow Station at Meadowview Road and travels south along the Union Pacific Railroad (UPRR) right-of-way (ROW). This segment is outside the permit area.

Segment #2. Begins this project. **Track Station 390+00 to 410+00**. The LRT extension route veers at the junction with the Morrison Creek levee to travel parallel with the levee.

Segment #3. Track Station 410+00 to 433+00. The LRT extension route crosses the confluence of Morrison and Unionhouse Creeks and the UPRR tracks via a flyover structure. The flyover structure was permitted separately (Permit Application No. 18166-1; Attachment C).

Segment #4. Project end. **Track Station 433+00 to 523+00**. The LRT extension route travels east to Cosumnes River Boulevard and continues to travel east parallel to the Unionhouse Creek levee and Cosumnes River Boulevard, crossing Franklin Boulevard, Track Station 470+00 and Center Parkway, Track Station 523+00 at grade.
Segment #5. The LRT extension route turns south along the western side of Bruceville Road and terminates at Consumnes River College. This segment is outside the permit area.

The Scope of Work for this permit is to construct the necessary components of the LRT extension along Morrison and Unionhouse Creeks as part of the South Sacramento Corridor Phase 2 Project. Construction includes:

Segments Numbers 2 and 4 stated above.

Track stations 390+00 to 410+00 = 2,000 LF
Track stations 433+00 to 523+00 = 9,000 LF
Sub Total stationing under this permit =11,000 LF
Sub Total stationing Permit 18166-1 = 2,300 LF
Total track = 2 x 13,300 LF

- 23,600 feet of track with overhead contact system (2 directions)
- 10,000 linear feet of retaining wall
- 7,500 linear feet of sound wall
- 3 LRT stations—Morrison Creek Station, Franklin Station, Center Parkway Station
- 6 private grade crossings—access to station platforms across tracks
- 1 pedestrian bridges over Unionhouse Creek—Valley Green pedestrian bridge
- Relocation of 4,000 linear feet of an existing levee access road adjacent to Morrison Creek

Note: Deer lake Pedestrian Bridge was removed from this permit to better align with the USACOE wishes to include a slag cement slurry cut-off wall in the existing federal levee at Light Rail Station 445+00. The permit for the second pedestrian bridge will be brought forward under a future Board Permit No. 18166-3.

5.0 – PROJECT ANALYSIS

The following project analyses have been made based on the review of available technical information provided by the applicant and the applicant's engineers. See Attachment D for proposed plans.

5.1 – Background

In 1984, the Sacramento Area Council of Governments (SACOG) completed the Sacramento LRT Extension Study Expanded LRT System Analysis. This analysis prioritized projects to guide future LRT expansion efforts and divided the projects into three phases: Phase 1, previously completed; Phase 2, subject of this permit; and Phase 3, future project subject to alternatives analysis and environmental evaluation.

The South Sacramento Corridor Phase 2 Project was evaluated by the Federal Transit Administration (FTA) and RT in a Supplemental Final Environmental Impact Statement/Subsequent Final Environmental Impact Report (SFEIS/SFEIR). The SFEIS/SFEIR was approved in December 2008 through the issuance of a Record of Decision by FTA and the filing of a Notice of Determination with the State of California by RT. Since approval of the SFEIS/SFEIR in 2008, a number of needed modifications to the project's design were identified by RT. These modifications were reviewed in the South Sacramento Corridor Light Rail Project Phase 2 Extension Final Initial Study/Environmental Assessment. FTA issued a Finding of No Significant Impact in October 2011.

5.2 – Hydraulic Analysis

The hydraulic analyses for Morrison Creek and Unionhouse Creek were performed using the U.S. Army Corps of Engineers (COE) HEC-RAS 1-D model version 4.1.0. The 100-year flows for Unionhouse Creek and Morrison Creek are 2,096 cfs and 6,875 cfs, respectively. Laguna Creek was added to the HEC-RAS model as an inflow point to Morrison Creek. The HEC-RAS model downstream boundary condition was set at 15.2 ft. The low chord of the UPRR bridge was set at 14.2 ft. The boundardy conditions on the north and south sides of Unionhouse Creek are the flood wall, designed by the COE, and the designated floodplain of Unionhouse Creek, respectively.

The hydraulic analyses showed that the Unionhouse Creek water surface elevation (WSEL) increased by a maximum of 0.04 ft (0.5 inches; see Attachment D for the hydraulic analysis). The Unionhouse Creek velocity between the Valley Green pedestrian bridge and the UPRR bridge ranged between 0.3 to 4.9 fps, with a maximum velocity change of 0.6 fps. The UPRR bridge is under pressure flow in the existing and proposed conditions. The WSEL under both conditions is 13.6 inches above the UPRR bridge low chord.

The following bridges—the Stockton Boulevard bridge and ramp culvert, the Highway 99 culvert, the Kaiser Hospital culvert, the Wyndham bridge, the Alpine Forest bridge, and the Center Parkway bridge—are not within the immediate proposed project site but are impacted by the project. The freeboard values cited herein above the 100-year flow

values for these bridges and culverts are for both existing and proposed conditions, since the WSEL in both cases is very similar.

The Stockton Boulevard bridge is under pressure flow in both existing and proposed conditions. The Stockton Boulevard ramp culvert freeboard is 12.6 inches. The freeboard for the Highway 99 culvert is 17.64 inches. The Kaiser Hospital culvert freeboard is more than 3 ft. The Wyndham bridge freeboard is 30.72 inches. The Alpine Forest bridge freeboard is more than 3 ft. The Center Parkway bridge freeboard is 9.5 inches. The freeboard above the 100-year flow at the Franklin Boulevard bridge, Deer Lake pedestrian bridge and Valley Green pedestrian bridge is 2.8 ft, 4.2 ft, and 4.3 ft, respectively.

Scour anslyses showed a potential local pier scour depth of 3 ft for the Deer Lake pedestrian bridge. The Valley Green pedestrian bridge is one span with no piers, and thus no local pier scour was performed.

The 100-year WSEL for the proposed conditions provided a minimum of three feet of freeboard for bridges within the project's immediate area except for Franklin Boulevard bridge. Title 23, Section 128(a)(10)(A) stipulates that the freeboard could be reduced to two feet for minor streams where significant amounts of stream debris are unlikely. As a result, the freeboard requirements under Title 23 Waters, Section 128(a)(10)(A) are met for the project.

The freeboard requirements for the bridges that are not within the immediate project area but impacted by the project are met since there is a small increase in the WSEL for the existing and proposed conditions. There was no significant increase in the velocity between the existing and proposed conditions. See Attachment E for Hydraulic Analysis.

5.3 – Geotechnical Analysis

Blackburn Consulting (BCI) prepared a January 26, 2010 Revised Final Geotechnical Report for the SACRT SSCP2 Extension project that includes geotechnical evaluation and recommendations for the following improvements: 23,600 lineal feet of double-track; 9,982 lineal feet of retaining wall; 7,420 lineal feet of sound wall; three stations (Morrison Creek Station, Franklin Station, and Center Parkway Station); six private grade crossings for access to station platforms (two per station); relocation of the existing Morrison Creek Levee access road (about 4,000 lineal feet from approximate Station 383+00 to 422+00); reconfiguration of an existing detention basin at Franklin Station; and two pedestrian bridges spanning Union House Creek (Deer Lake Drive (future permit) and Valley Green Drive Pedestrian Bridges). BCI performed 56 exploratory borings and conducted laboratory testing to obtain engineering parameters for analysis and design.

BCI's geotechnical evaluations and recommendations for the above project components included: slope stability and settlement analysis including recommendations to mitigate

potential slope instability and detrimental settlement; appropriate cut and fill slope inclinations; suitable fill types and subgrade/fill compaction requirements; retaining wall and sound wall foundation recommendations including lateral earth pressures and surcharge loading; pedestrian bridge foundation and approach fill recommendations; foundation, pavement design and drainage improvement recommendations for station improvements; expansive soil mitigation; California Building Code design parameters; underground utilities; and new flood wall recommendations.

BCI is providing on-going geotechnical evaluation as necessary to support final project design.

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies, are shown below:

- The U.S. Army Corps of Engineers 408 minor comment letter has not been received for this application. Staff anticipates receipt of a letter indicating that the USACE District Engineer has no objection to the project, subject to conditions. Upon receipt of the letter, staff will review to ensure conformity with the permit language and incorporate it into Permit No. 18166-2 as Exhibit B.
- City of Sacramento's conditional support letter. See Attachment B, Exhibit B.
- Regional Transit letter to the City of Sacramento, final issues, dated February 9, 2012. See Attachment B, Exhibit C.
- City of Sacramento, Utilities; endorsement as the Long Term Maintenance Agency (LMA), dated May 15, 2012. See Attachment B, Exhibit D.

7.0 – CEQA ANALYSIS

The Central Valley Flood Protection Board (Board) staff has prepared the following CEQA determination:

The Board, acting as a responsible agency under CEQA, has independently reviewed the Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) (SCH No. 1996052075, September 1994); Supplemental Final Environmental Impact Statement/Subsequent Final Environmental Impact Report (SFEIS/SFEIR) (SCH No. 1996052075, September 2008); Initial Study Mitigated Negative Declaration /Environmental Assessment (ISMND/EA), (SCH No. 1996052075, August 2011) on the South Sacramento Corridor Phase 2 Light Rail Extension Project. RT, as the lead agency, determined that the project would have a significant effect on the environment and adopted Resolution 08-10-0145 on October 27, 2008 (including Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program). The Notice of Determination for the SFEIS/SFEIR and ISMND/EA was filed with the State

Clearinghouse on October 31, 2008 and September 28, 2011, respectively. These documents, including project design, may be viewed or downloaded from the Board website at: http://www.cvfpb.ca.gov/meetings/2012/05-25-2012.cfm

7.1 - Impacts That Can Be Mitigated

The significant impacts and the mitigation measures to reduce them to less than significant are adopted in Sacramento Regional Transit Resolution 08-10-0145, dated October 27, 2008 (which includes a Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program). The significant impacts associated with the South Sacramento Corridor Light Rail Phase 2 Extension Project, are reduced to a less-than-significant level by mitigation measures identified in the MMRP and have been incorporated into the project.

Based on its independent review of the DEIS/R, SFEIS/R, ISMND/EA and Sacramento Regional Transit District Resolution 08-10-0145 the Board finds that for each of the significant impacts described, changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessens the significant environmental effects as identified in the SFEIS/R and ISMND/EA.

7.2 - Significant Unavoidable Adverse Impacts of the Project

The following impacts of the proposed project remain significant following adoption and implementation of the mitigation measures described in the SFEIS/SFEIR:

The Locally Preferred Alternative Phase 2 (LPAP2) locates a 2,000 space parking structure just south of the main college entrance off of Bruceville Road and includes an extension of an internal Cosumnes River College roadway to a new driveway on Old Calvine Road, about 500 feet west of Bruceville Road. The LPAP2 is projected to impact the intersection of Franklin Boulevard and Cosumnes River Boulevard. During the AM peak traffic hour, the intersection operating condition deteriorates by more than 5 seconds of delay, from 65.2 to 86.0 seconds. During the PM peak traffic hour, the intersection operating condition deteriorates by more than 5 seconds of delay, from 44.2 to 64.8 seconds.

The Board further finds that none of the significant unavoidable adverse impacts of the project are within the Board's jurisdiction. The Board also finds that the specific economic, legal, social, technological or other benefits of the project outweigh the unavoidable adverse environmental effects, which are thus considered to be "acceptable."

7.3 - Statement of Overriding Considerations

Sacramento Regional Transit District adopted Resolution 08-10-0145 including the Statement of Overriding Considerations. The Board concurs with this Statement.

The Board has independently considered the significant and unavoidable environmental impacts of the proposed project. The Board has also considered the benefits of the project including improving travel and mobility by providing a transportation system that is safe, efficient, and coordinated; providing a transportation system that enhances the physical and

natural environment by minimizing air pollution, minimizing and mitigating noise pollution, and conserving energy.

The Board finds that economic, legal, social, technological, or other benefits of the proposed project outweigh the unavoidable adverse environmental effects of the project, and the adverse environmental effects are considered acceptable when these benefits of the project are considered. The documents and other materials which constitute the record of the Central Valley Flood Board's proceedings in this matter are in the custody of Jay Punia, Executive Officer, Central Valley Flood Protection Board, 3310 El Camino Ave., Rm. 151, Sacramento, California 95821.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, state or local public agency, or nongovernmental organization with expertise in flood or floodplain management:

   The Board will make its decision based on the evidence in the permit application and attachments, this staff report, and any other evidence presented by any individual or group.

2. The best available science that is related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues:

   The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the entire State Plan of Flood Control:

   This project does not have significant impacts on the State Plan of Flood Control; the project does not impair the structural or hydraulic functions of the system.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

   There are no foreseeable projected future events that would impact this project.

9.0 – STAFF RECOMMENDATION

Staff recommends that the Board adopt the Board's CEQA Findings, Resolution No. 2012-26, approve Permit No. 18166-2 (Attachment B) Conditioned upon receipt of a

U.S.Army Corps of Engineers comment letter indicating that the District Engineer has no objection to the project, subject to conditions, and direct staff to file a Notice of Determination with the State Clearinghouse.

10.0 – LIST OF ATTACHMENTS

A. Resolution No. 2012-26
B. Draft Permit No. 18166-2
    - Exhibit A: U.S. Army Corps of Engineers Comment Letter (Pending)
    - Exhibit B: City of Sacramento's Conditional Support Letter dated April 19, 2010
    - Exhibit C: Regional Transit letter to City of Sacramento, Department of Utilities, Final issues, dated February 9, 2012.
    - Exhibit D: City of Sacramento, Utilities; endorsement as the Long Term Maintenance Agency (LMA), dated May 15, 2012.
C. Location Map
D. Permit No. 18166-1
E. Proposed Plans:
    a. Overall plan view
    b. Phase 2 project
    c. Cross Sections; Sheets 68, 77
    d. Track plans; sheets 108, 109, 110, 111, 115 to 126
    e. Valley Green Drive Pedestrian Bridge; Sheet 375
F. Hydraulic Analysis
G. Agreements
    - Exhibit A: Sacramento Light Rail System Operations Agreement No. 84165, dated May 2, 2001
    - Exhibit B: Operations and Joint Use Agreement between the Sacramento Regional County Sanitation District and the Sacramento Regional Transit District for the South Sacramento Corridor Phase Project Area (unsigned)
    - Exhibit C: State of California Standard Agreement between Department of Water Resources/The Reclamation Board and the Department of the Army Corps of Engineers for the construction of the South Sacramento County Streams Project, dated May 27, 2005
    - Exhibit D: Project Cooperation Agreement No. 4600002777 between the Department of the Army, the State of California and the Reclamation Board for the South Sacramento County

Streams in California, dated May 20, 2005 (excerpt of agreement only)

H. Full funding Gant Agreement, Regional Transit dated May 8, 2012

Report Completed by:	David Alderete, P.E.; Dr. Saad Merayyan (Both acting as Board Staff)
Design Review:	David R. Williams, P.E.
Environmental Review:	James Herota, E.S.; Andrea Mauro, E.S.
Document Review:	Eric Butler, P.E.; Len Marino, P.E., Chief Engineer

Attachment A

Resolution

STATE OF CALIFORNIA
THE RESOURCES AGENCY
CENTRAL VALLEY FLOOD PROTECTION BOARD

RESOLUTION NO. 2012-26

FINDINGS AND DECISION AUTHORIZING ISSUANCE OF
ENCROACHMENT PERMIT NO. 18166-2
SACRAMENTO REGIONAL TRANSIT DISTRICT
SOUTH SACRAMENTO CORRIDOR LIGHT RAIL PHASE 2 EXTENSION PROJECT
SACRAMENTO COUNTY

WHEREAS, the Sacramento Regional Transit District ("RT") has begun the South Sacramento Corridor Light Rail Phase 2 Extension Project; and

WHEREAS, RT as lead agency under the California Environmental Quality Act, Public Resources Code sections 21000 *et seq*. ("CEQA") prepared a Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR), Supplemental Final Environmental Impact Statement/Subsequent Final Environmental Impact Report (SFEIS/SFEIR) and an Initial Study Mitigated Negative Declaration/Environmental Assessment (ISMND/EA), on the South Sacramento Corridor Light Rail Project Phase 2 Extension Project ("EIR") incorporated herein by reference and available at the Central Valley Flood Protection Board offices or RT offices); and

WHEREAS, RT, as lead agency, certified the EIR, adopted mitigation measures and a Mitigation Monitoring Reporting Plan ("MMRP") (incorporated herein by reference and available at the offices of the Central Valley Flood Protection Board or RT), approved findings and a statement of overriding considerations pursuant to CEQA and the CEQA Guidelines (incorporated herein by reference); and approved the Project as identified for the South Sacramento Corridor Light Rail Project Phase 2 Extension Project; and

WHEREAS, RT submitted Application No. 18166-2 to the Central Valley Flood Protection Board on September 20, 2011 to extend the south line light rail transit system from its current terminus at Meadowview Road to Cosumnes River College; and

WHEREAS, the geographic description of the project area is located in south Sacramento along Morrison and Union House Creeks, in Sacramento County; and

WHEREAS, RT prepared the Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) (SCH No. 1996052075, September 1994); Supplemental Final Environmental Impact Statement/Subsequent Final Environmental Impact Report (SFEIS/SFEIR) (SCH No. 1996052075, September 2008); and Initial Study Mitigated Negative Declaration/Environmental Assessment (ISMND/EA), (SCH No. 1996052075, August 2011) on the South Sacramento Corridor Light Rail Phase 2 Extension Project. RT, as the lead agency,

determined that the project would have a significant effect on the environment and adopted Resolution 08-10-0145 on October 27, 2008 (including Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program); and

WHEREAS, the DEIS/DEIR was published for a 45-day public review period that ended on November 14, 1994; and

WHEREAS, the SFEIS/SFEIR was published on September 30, 2008, the Notice of Determination was filed with the State Clearinghouse on October 31, 2008. RT prepared a Mitigation Monitoring and Reporting Program (MMRP), and on October 27, 2008, the RT Board made CEQA findings, and adopted a Statement of Overriding Considerations and approved the South Sacramento Corridor Light Rail Phase 2 Extension Project; and

WHEREAS, the ISMND/EA was published for a 45-day public review period that ended on August 2, 2011. RT prepared a Mitigation Monitoring and Reporting Program (MMRP), and on September 28, 2011 filed a Notice of Determination with the State Clearinghouse; and

WHEREAS, on May 15, 2012 the City of Sacramento Utility Department endorsed application 18166-2; and

WHEREAS, approval of Encroachment Permit No. 18166-2 is conditioned upon receipt of 33 U.S.C. Section 408 approval and letter of permission from the U.S. Army Corps of Engineers (Corps) comment letter for application 18166-2; and

WHEREAS, Board staff completed a technical review of the South Sacramento Corridor Light Rail Phase 2 Extension Project proposed under Permit Application No. 18166-2; and

WHEREAS, this technical review concluded that the designs of this project are in accordance with current Central Valley Flood Protection Board (Board) and U.S. Army Corps of Engineers (Corps) standards; and

WHEREAS, the Board has conducted a public hearing on Permit Application No. 18166-2 and has reviewed the Reports of its staff, the documents and correspondence in its file, and the environmental documents prepared by RT.

NOW, THEREFORE, BE IT RESOLVED THAT,

Findings of Fact.

1. The Central Valley Flood Protection Board hereby adopts as findings the facts set forth in the Staff Report.

2. The Board has reviewed all Attachments, Exhibits, Figures, and References listed in the Staff Report.

CEQA Findings.

3. The Central Valley Flood Protection Board, as a responsible agency, has independently reviewed the analyses in the Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) (SCH No. 1996052075, September 1994) ; Supplemental Final Environmental Impact Statement/Subsequent Final Environmental Impact Report (SFEIS/SFEIR) (SCH No. 1996052075, September 2008); Initial Study Mitigated Negative Declaration/Environmental Assessment (ISMND/EA), (SCH No. 1996052075, August 2011) on the South Sacramento Corridor Light Rail Phase 2 Extension Project submitted by RT and has reached its own conclusions regarding them.

4. The Central Valley Flood Protection Board, after consideration of the Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) (SCH No. 1996052075, September 1994); Supplemental Final Environmental Impact Statement/Subsequent Final Environmental Impact Report (SFEIS/SFEIR) (SCH No. 1996052075, September 2008); Initial Study Mitigated Negative Declaration/Environmental Assessment (ISMND/EA), (SCH No. 1996052075, August 2011) on the South Sacramento Corridor Light Rail Phase 2 Extension Project, and RT Lead Agency findings, adopts the project description, analysis and findings which are relevant to activities authorized by issuance of a final encroachment permit consistent with Permit No. 18166-2.

5. **Findings regarding Significant Impacts**. Pursuant to CEQA Guidelines sections 15096(h) and 15091, the Central Valley Flood Protection Board determines that the RT findings, attached to the Staff Report, and incorporated herein by reference, summarize the SFEIS/SFEIR determinations regarding impacts of the South Sacramento Corridor Light Rail Phase 2 Extension Project, before and after mitigation. Having reviewed the SFEIS/SFEIR the RT findings, the Central Valley Flood Protection Board makes its findings as follows:

   a. Findings regarding Significant and Unavoidable Impacts.

   The Central Valley Flood Protection Board finds that the South Sacramento Corridor Light Rail Phase 2 Extension Project, may have the following significant, unavoidable impacts, as more fully described in the SFEIS/SFEIR and the RT findings. Mitigation has been adopted for each of these impacts, although it does not reduce the impact to less than significant. The impacts and mitigation measures are set forth in more detail in the SFEIS/SFEIR and RT findings.

   The following impacts of the proposed project remain significant following adoption and implementation of the mitigation measures described in the SFEIS/SFEIR:

   The Locally Preferred Alternative Phase 2 (LPAP2) locates a 2,000 space parking structure just south of the main college entrance off of Bruceville Road and includes an extension of an internal Cosumnes River College roadway to a new driveway on Old Calvine Road, about 500 feet west of Bruceville Road. The LPAP2 is projected to

impact the intersection of Franklin Boulevard and Cosumnes River Boulevard. During the AM peak traffic hour, the intersection operating condition deteriorates by more than 5 seconds of delay, from 65.2 to 86.0 seconds. During the PM peak traffic hour, the intersection operating condition deteriorates by more than 5 seconds of delay, from 44.2 to 64.8 seconds.

Finding. The Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen such impacts, as set forth more fully in the RT findings, but that each of the above impacts remains significant after mitigation. Such mitigation measures are within the responsibility of another agency, RT, and RT can and should implement the described mitigation measures. Specific economic, legal, social, technological or other considerations, make infeasible mitigation or alternatives that would have reduced these impacts to less than significant.

b. Findings regarding Significant Impacts that can be reduced to Less Than Significant.

The Final SEIR identifies the following significant impacts associated with the South Sacramento Corridor Light Rail Phase 2 Extension Project, that are reduced to a less-than-significant level by mitigation measures identified in the Final SEIR and incorporated into the project:

Transportation - Transit improvements include additional turn lanes; widening the bridge over Union House Creek; improvements to signal phasing at intersections; additional shared through–turn lanes.

Biological Resources - Compensation for impacts will be through purchase of the equivalent preservation credits, and creation/restoration credits from a USFWS approved conservation bank, or combination of banks.

Noise - Noise barriers will be constructed to mitigate noise impacts in compliance with Federal Transportation Act and Regional Transit criteria.

Vibration - Installation of ballast mats in areas where potential for impact has been identified (near Meadowview and super levee).

Finding. The Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen such impacts, as set forth more fully in the RT findings, which describe the mitigation measures for each impact in detail. With such mitigation, each of the significant impacts will be reduced to less-than-significant. Such mitigation measures are within the responsibility of another agency, RT, and RT can and should implement the described mitigation measures.

6. As a responsible agency, the Central Valley Flood Protection Board has responsibility for mitigating or avoiding only the direct or indirect environmental effects of those parts of the

Project which it decides to carry out, finance, or approve. The Board confirms that it has reviewed the MMRP, and confirmed that RT has adopted and committed to implementation of the measures identified therein. The Board agrees with the analysis in the MMRP and confirms that there are no feasible mitigation measures within its powers that would substantially lessen or avoid any significant effect the project would have on the environment. None of the mitigation measures in the MMRP require implementation by the Board directly, although continued implementation of the MMRP shall be made a condition of issuance of the Encroachment Permit. However, the measures in the MMRP may be modified to accommodate changed circumstances or new information not triggering the need for subsequent or supplemental analysis under CEQA Guidelines sections 15062 or 15063.

7. **Statement of Overriding Considerations.** Pursuant to CEQA Guidelines sections 15096(h) and 15093, the Board has balanced the economic, social, technological and other benefits of the Project described in application No. 18166-2, against its significant and unavoidable impacts, listed in paragraph 5(a) above, and finds that the benefits of the Project outweigh these impacts and they may, therefore, be considered "acceptable".

   The Central Valley Flood Protection Board finds that there is a need to improve transit in south Sacramento including improving travel and mobility by providing a transportation system that is safe, efficient, and coordinated; providing a transportation system that enhances the physical and natural environment by minimizing air pollution, minimizing and mitigating noise pollution, and conserving energy.

   The transportation, environmental and safety benefits of the project, which would significantly reduce the traffic and environmental effects, outweigh the remaining unavoidable environmental impacts.

8. **Custodian of Record**. The custodian of the CEQA record for the Board is its Executive Officer, Jay Punia, at the Central Valley Flood Protection Board Offices at 3310 El Camino Avenue, Room 151, Sacramento, California 95821.

Considerations pursuant to Water Code section 8610.5

9. **Evidence Admitted into the Record**. The Board has considered all the evidence presented in this matter, including the original application for Permit No. 18166-2 and technical documentation provided by RT on the South Sacramento Corridor Light Rail Phase 2 Extension Project and present Staff Report and attachments, the EIR (Draft and Final Versions), RT Resolution 08-10-0145 including findings, Statement of Overriding Considerations, the Mitigation Monitoring and Reporting Program.

10. **Best Available Science**. In making its findings, the Board has used the best available science relating to the issues presented by all parties. The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

11. **Effects on State Plan of Flood Control**. This project does not have significant impacts on the State Plan of Flood Control; the project does not impair the structural or hydraulic functions of the system.

    When the 33 U.S.C. Section 408 approval and letter of permission are received, the Corps approval and permission will be based upon determination that such alterations will not be injurious to the public interest and will not impair the usefulness of the State Plan of Flood Control.

12. **Effects of Reasonably Projected Future Events**. The project would have no net increases in operational greenhouse gas (GHG) emissions impacting climate change. Emissions would be less than for the No-Action Alternative.

Other Findings/Conclusions regarding Issuance of the Permit.

13. Based on the foregoing and particularly on the evidence that the condition of mobility in the existing south Sacramento area poses an unacceptable inefficiencies and risk to public safety and the environment, the Board finds and concludes that the issuance of Encroachment Permit No. 18166-2 for the South Sacramento Corridor Light Rail Phase 2 Extension Project is in the public interest.

14. This resolution shall constitute the written decision of the Central Valley Flood Protection Board in the matter of Permit No. 18166-2.

Approval of Encroachment Permit No. 18166-2.

15. Based on the foregoing, the Central Valley Flood Protection Board hereby conditionally approves issuance of Encroachment Permit No. 18166-2 in substantially the form provided in the Staff Report, subject to receipt, review and approval of final 100% plans, drawings and specifications and receipt of 33 U.S.C. Section 408 approval and letter of permission from the U.S. Army Corps of Engineers stating that the Corps has no opposition to the project.

16. The Board directs the Executive Officer to take the necessary actions to prepare and execute Encroachment Permit No. 18166-2 and all related documents and to prepare and file a Notice of Determination under the California Environmental Quality Act for the South Sacramento Corridor Light Rail Phase 2 Extension Project.

PASSED AND ADOPTED by vote of the Board on _____, 2012

_____
William Edgar
President

_____
Jane Dolan
Secretary

Exhibit A: USACE Comment Letter (pending)

Exhibit B: City of Sacramento's Conditional Support Letter dated April 19, 2010

Exhibit C: Regional Transit letter to City of Sacramento, Department of Utilities, Final issues, dated February 9, 2012.

Exhibit D: City of Sacramento, Utilities; endorsement as the Long Term Maintenance Agency (LMA), dated May 15, 2012.

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY

THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18166-2 BD

This Permit is issued to:

Sacramento Regional Transit District
1400 29th Street
Sacramento, California 95812-2110

Construct light rail improvements as part of the South Sacramento Corridor Phase 2 which include the track, overhead contact system, retaining walls, soundwalls, grade crossings and stations, 2 pedestrian bridges adjacent to and over Union House Creek;and relocate existing levee access road adjacent to Morrison Creek. The project is located in South Sacramento extending from Meadowview Road to Franklin Bruceville Road (Section 8 & 9, T7N, R5E, MDB&M, Maintenance Area 9, Morrison Creek, Sacramento County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

_____
Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection

Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18166-2 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

FOURTEEN: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Department of Water Resources or any other agency responsible for maintenance.

FIFTEEN: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

SIXTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion

SEVENTEEN: The Central Valley Flood Protection Board and Department of Water Resources shall

not be held liable for any damages to the permitted encroachment(s) resulting from flood fight, operation, maintenance, inspection, or emergency repair.

EIGHTEEN: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

NINETEEN: The permittee should contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250, as compliance with Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act may be required.

TWENTY: The permittee shall be responsible for repair of any damages to the Morrison Creek and Union House Creek and other flood control facilities due to construction, operation, or maintenance of the proposed project.

TWENTY-ONE: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

TWENTY-TWO: The permittee shall provide supervision and inspection services acceptable to the Central Valley Flood Protection Board. A professional engineer registered in the State of California shall certify that all work was inspected and performed in accordance with submitted drawings, specifications, and permit conditions.

TWENTY-THREE: Upon completion of the project, the permittee shall submit as-built drawings to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite Rm 256, Sacramento, California 95821.

TWENTY-FOUR: No construction work of any kind shall be done during the flood season from November 1 to April 15 without prior approval of the Central Valley Flood Protection Board.

TWENTY-FIVE: The proposed access ramps shall be graded to direct all surface drainage away from the levee or fill section.

TWENTY-SIX: At all times during construction, at least one lane of the levee crown roadway shall be kept clear for vehicular access.

TWENTY-SEVEN: No excavation shall be made or remain in the levee section during the flood season from November 1 to April 15 without prior approval of the Central Valley Flood Protection Board.

TWENTY-EIGHT: A temporary bench mark, set to a known datum, shall be placed at the project site during construction.

TWENTY-NINE: All cleared trees and brush shall be completely burned or removed from the

floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1 to April 15.

THIRTY: Temporary staging, formwork, stockpiled material and/or equipment shall not remain in the floodway during the flood season from November 1st to April 15 without pre-authorization from the Central Valley Flood Protection Board's Chief Engineer.

THIRTY-ONE: The work area shall be restored to the condition that existed prior to start of work.

THIRTY-TWO: Trees, brush, sediment, and other debris shall be kept cleared from the bridge site and disposed of outside the floodway to maintain the design flow capacity and flowage area.

THIRTY-THREE: If the bridge is damaged to the extent that it may impair the channel or floodway capacity, it shall be repaired or removed prior to the next flood season.

THIRTY-FOUR: All debris generated by this project shall be disposed of outside the adopted plan of flood control and/or the flood control project works.

THIRTY-FIVE: There shall be no plantings within the project area under this permit, except that of native grasses, which may be required for slope protection.

THIRTY-SIX: If the permitted encroachment result in an adverse hydraulic impact, the permittee shall provide appropriate mitigation measures, to be approved by the Central Valley Flood Protection Board, prior to implementation of mitigation measures.

THIRTY-SEVEN: The mitigation measures approved by the CEQA lead agency and the permittee are found in its Mitigation and Monitoring Reporting Program (MMRP) adopted by the CEQA lead agency. The permittee shall implement all such mitigation measures.

THIRTY-EIGHT: The letter from the Department of the Army dated _____ 2012 attached to this permit as Attachment B, Exhibit A is in reference to this project and all conditions are included in the Board's permit.

THIRTY-NINE: The permittee shall contact the Department of Water Resources, Inspection Branch by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. The permitee shall also contact the Central Valley Flood Protection Board's Construction Supervisor at (916) 574-2646 for quality assurance inspection. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

FORTY: The permittee shall operate and maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the City of Sacramento, Department of Water Resources, Sacramento Area Flood Control Agency or any other agency responsible for maintenance. Maintenance may include actions to preserve the integrity of the flood control system under emergency conditions. Any planting under this project other than seeding shall comply with a Mitigation Monitoring and Reporting and Long Term Management Plan. The general maintenance will be at the sole expense of the permittee.

FORTY-ONE: All addendums or other changes made to the submitted documents by the permittee

after issuance of this permit are subject to submittal and review for approval by the Central Valley Flood Protection Board prior to incorporation into the permitted project. Upon review and approval of any new submitted documents the permit shall be revised, if needed, prior to construction related to the proposed changes. The Central Valley Flood Protection Board shall have up to 90 days after receipt of any documents, plans, drawings, and specifications for the review process. The Central Valley Flood Protection Board and/or the Department of Water Resources may extend this review period by written notification.

FORTY-TWO: Prior to commencement of excavation, the permittee shall create a photo record, including associated descriptions, of the project conditions. The photo record shall be certified (signed and stamped) by a licensed land surveyor or professional engineer registered in the State of California and submitted to the Central Valley Flood Protection Board within 30 days of beginning the project.

FORTY-THREE: All work approved by this permit shall be in accordance with the final (100%) submitted drawings and specifications except as modified by special conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

FORTY-FOUR: Currently the Central Valley Flood Protection Board (Sacramento San Joaquin Drainage District) does not possess any land within this project area in fee or permanent easement. If the Board determines that it may be necessary to do so, they will be allowed to acquire the necessary parcels for flowage easements within one year from permit approval.

A2 : A - 01922

RECEIVED
APR 23 2010
ECD

DEPARTMENT
OF UTILITIES

ENGINEERING
SERVICES DIVISION

CITY OF SACRAMENTO
CALIFORNIA

1395 35th AVENUE
SACRAMENTO, CA
95822-2911

PH 916-808-1400
FAX 916-808-1497/1498

April 19, 2010
(100012:DB:BB)

Ms. Diane Nakano
Project Manager
Sacramento Regional Transit District
2811 O Street
Sacramento, CA 95816

Dear Ms. Nakano:

Subject: Conditional Support for the Regional Transit Southline Project

The City understands that the Southline project is on hold, but that RT would like to move forward with the California Central Valley Flood Protection Board Permit application (CCVFPB) for the project. In accordance with this desire, the City of Sacramento supports advancing the subject project with the condition that a City/RT Southline Memorandum of Understanding (MOU) be entered into prior to the California Central Valley Flood Protection Board (CCVFPB) issuing their encroachment permit. The intent of this letter is to support the application by your office to the CCVFPB so they may start their review and that the CCVPB is aware that the levee maintaining agency has reviewed your project application. Key issues to be resolved in the MOU include, but are not limited to:

1. Several utility relocation/modification issues,
2. Location of the Delta Shores station,
3. Relocation of the County Alert Gage on Union House Creek,
4. Soundwalls between Franklin and Center Parkway,
5. Center Parkway Bridge Modifications,
6. Facilitation of the Corps Union House Creek improvement project,
7. Maintenance of the bike/pedestrian, canal and roadway overcrossing bridges constructed with the project by RT at its cost, and
8. Maintenance of the bike/pedestrian path between Union House Creek and the LRT tracks by RT at its cost.

The City requests that the final permit not be issued by the CVFPB until the MOU is finalized to the City's satisfaction. Should there be questions regarding these issues please contact Bill Busath @ 916-808-1434.

Sincerely,

David L. Brent, Engineering Manager

cc: District 8 Councilmember, Bonnie Pannell
District 7 Councilmember, Robbie Waters
Tim Mar, Supervising Engineer
Bill Busath , Supervising Engineer
Marshall Marik, Corps of Engineers
Kelly Fucciolo, DWR

Regional Transit

Sacramento Regional Transit District
A Public Transit Agency
and Equal Opportunity Employer

Mailing Address:
P.O. Box 2110
Sacramento, CA 95812-2110

Administrative Office:
1400 29th Street
Sacramento, CA 95816
(916) 321-2800
(29th St. Light Rail Station/
Bus 36,38,50E,67,68)

Light Rail Office:
2700 Academy Way
Sacramento, CA 95815
(916) 648-8400

Human Resources Office:
Employee Relations Office:
2830 G Street, 2nd Floor
Sacramento, CA 95816
(916) 321-3800
(Bus 30,31,34,67,68)

Public Transit Since 1973

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February 9, 2012

Bill Busath
Department of Utilities
City of Sacramento
1395 35th Avenue
Sacramento, CA 95816

Subject: South Sacramento Corridor Phase 2 Project
Central Valley Flood Protection Board Permit
File: 410

Dear Mr. Busath:

Regional Transit (RT) is proceeding forward with completing the design and obtaining all necessary permits needed for the construction for the South Sacramento Corridor Phase 2 (SSCP2) Project. The tentative schedule for the completion of design for the Civil, Track and Systems portion is this June and we anticipate that construction will commence in early 2013.

RT's immediate focus is obtaining the Central Valley Flood Protection Board Permit (CVFPB) and as previously discussed we need concurrence from the City and the Sacramento Area Flood Control Agency (SAFCA). It is my understanding that RT's consultants have addressed several key issues identified in the City letter dated February 4, 2010 and will continue to address remaining issues as RT seeks final plan approval prior to construction.

The following are status updates to the City's Issues:

- RT's consultant is continuing to address utility relocations/ modifications with City staff. Final plan approval will be contingent upon the utility relocations/modifications.

- The Morrison Creek Station (Delta Shores Station) and track alignments have been relocated 50' away from the levee toe as required in the 2030 City General Plan.

- The County Alert Gage on Union House Creek will remain in place.

- Alternate methods to mitigate noise issues are being recommended to replace the soundwalls between Franklin Boulevard and Center Parkway. The final alternative will be included in the final plan approval.

- The Center Parkway Bridge Modifications issues have been eliminated with the coordination of RT facilities and the proposed widening improvements of Union House Creek.

- Several coordination meetings regarding Union House Creek Improvement project have occurred with a proposed path forward. RT will coordinate with SAFCA's consultants with the proposed widening of the Creek.

- The proposed maintenance of the pedestrian/bike overcrossing bridges will be by RT and can be addressed in an amended RT / City Operating and Maintenance Agreement.

- The proposed maintenance of the pedestrian/bike path between Union House Creek and the RT tracks will be by RT and can be addressed in an Amended RT/City Operating and Maintenance Agreement.

RT request that the City provide concurrence to these issue so that the CVFPB permit can be scheduled for approval.

If you have any further questions, please feel free to contact me at 321-3876 or Jenny Niello at 321-3884.

Sincerely,

Darryl Abansado
Director, Civil and Track Design

c: Dave Brent – CITY
Tim Mar – CITY
Diane Nakano – RT
Jenny Niello – RT

DEPARTMENT OF UTILITES

ENGINEERING
SERVICES DIVISION

CITY OF SACRAMENTO
CALIFORNIA

1395 35TH AVENUE
SACRAMENTO, CA
95822-2911

PH 916-808-1400
FAX 916-808-1497/1498

May 15, 2012
(120140:BB)

Central Valley Flood Protection Board
Attn: Mr. David R. Williams, Senior Engineer
3310 El Camino Avenue, Suite LL40
Sacramento, CA 95821

Subject: Regional Transit District's South Sacramento Corridor Phase 2, Permit Application No. 18166-2

Dear Mr. Williams:

The City of Sacramento Utilities Department maintains flood control and drainage facilities along Morrison and Unionhouse Creeks. Utilities Department commented on RT's environmental documents for this project, and on April 19, 2010, Utilities Department provided a letter of conditional support for RT's South Line project. Utilities Department and RT have and will continue to coordinate various aspects of RT and City plans for improvements in the Unionhouse Creek / Cosumnes River Boulevard corridor.

Based upon our most recent coordination efforts, Utilities Department provides this letter as endorsement of Regional Transit District's application for Central Valley Flood Protection Board Permit No. 18166-2. If you would like to discuss or would like additional information, you may contact me at 916-808-1434.

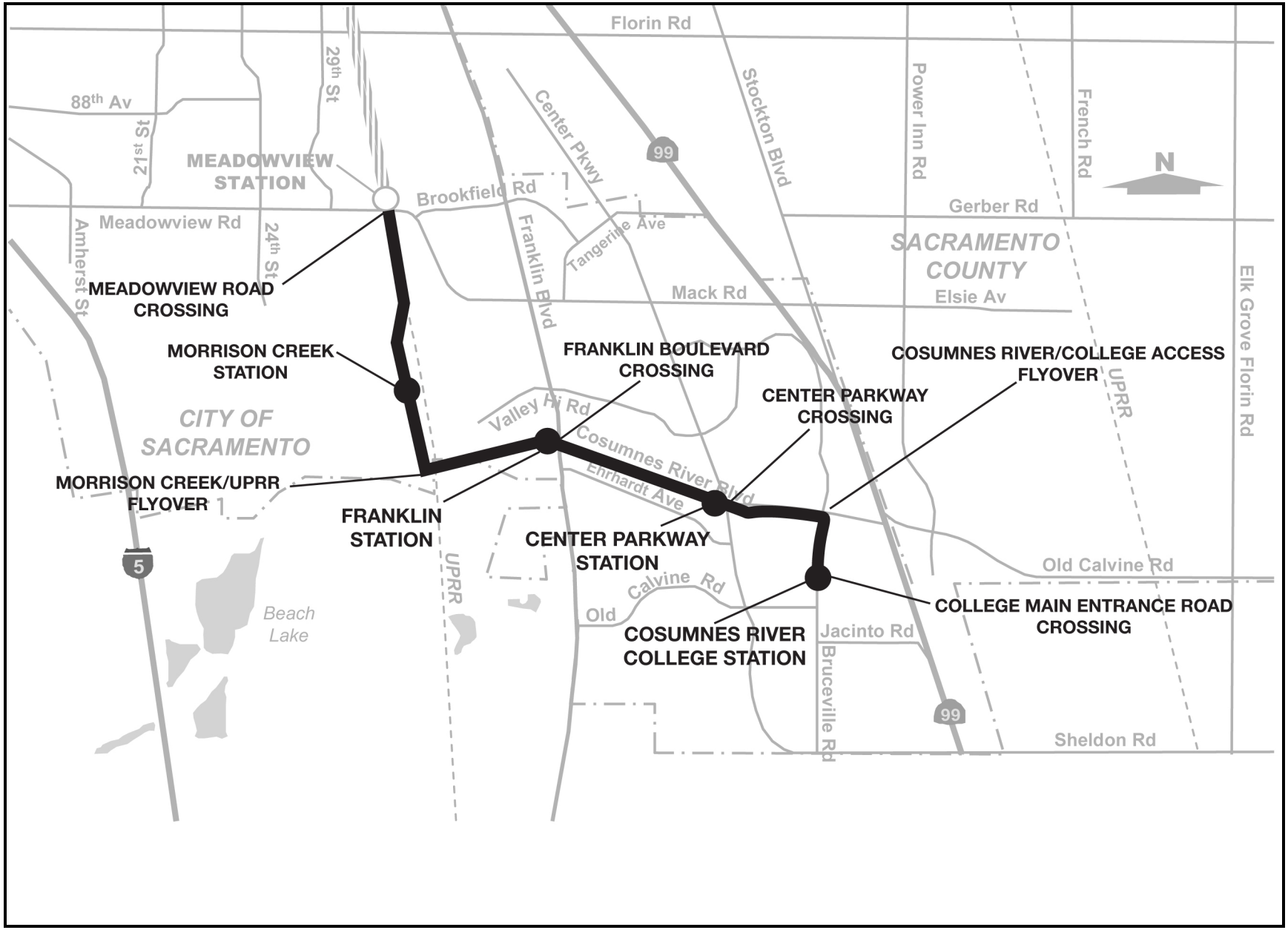
Sincerely,

Bill Busath, Interim Engineering Services Manager

cc:
Darryl Abansado, Sacramento Regional Transit District
Pete Ghelfi, SAFCA
Dave Brent, City of Sacramento
Nicholas Theocharides, City of Sacramento
William Roberts, City of Sacramento

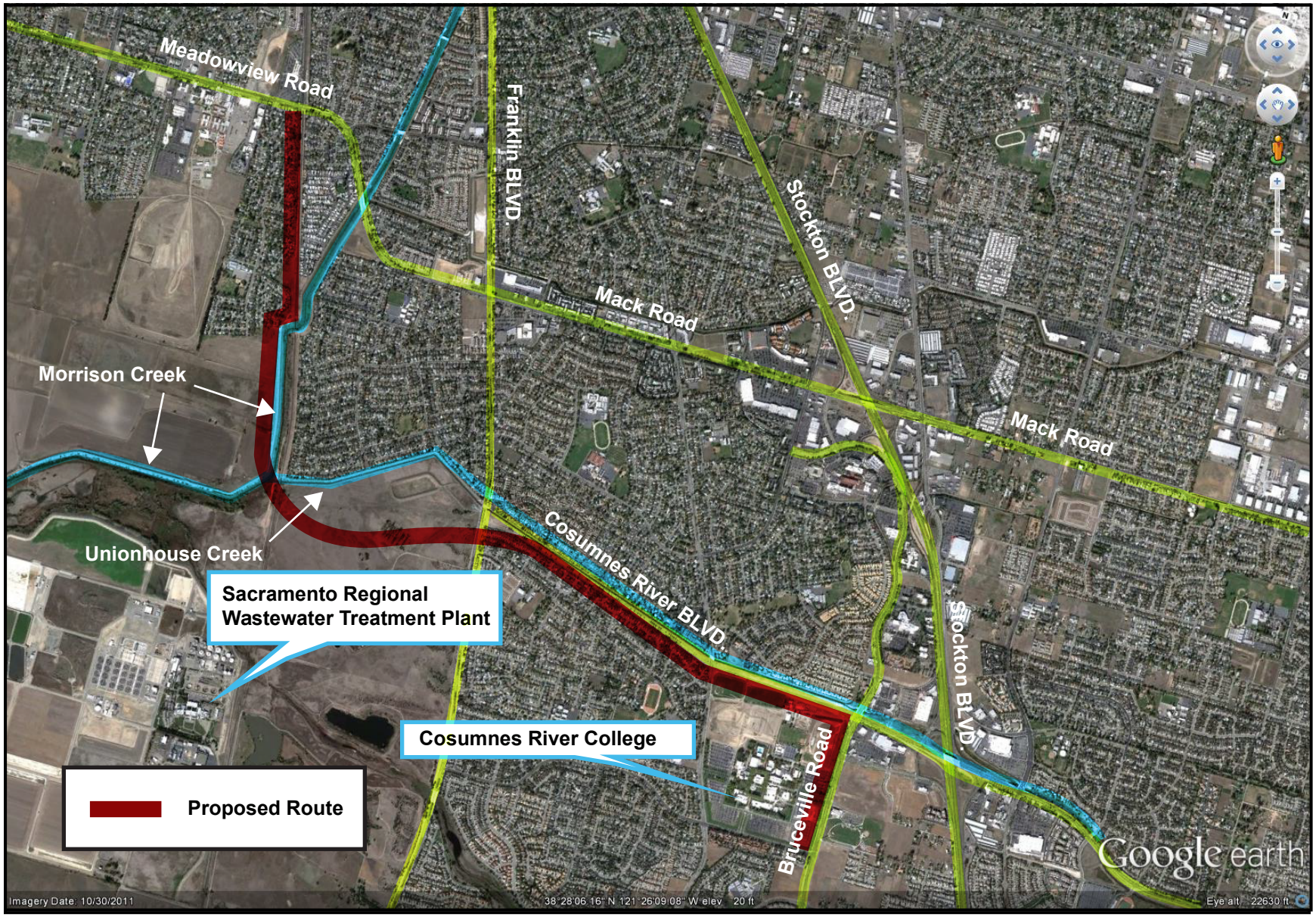
Attachment C

Location Map



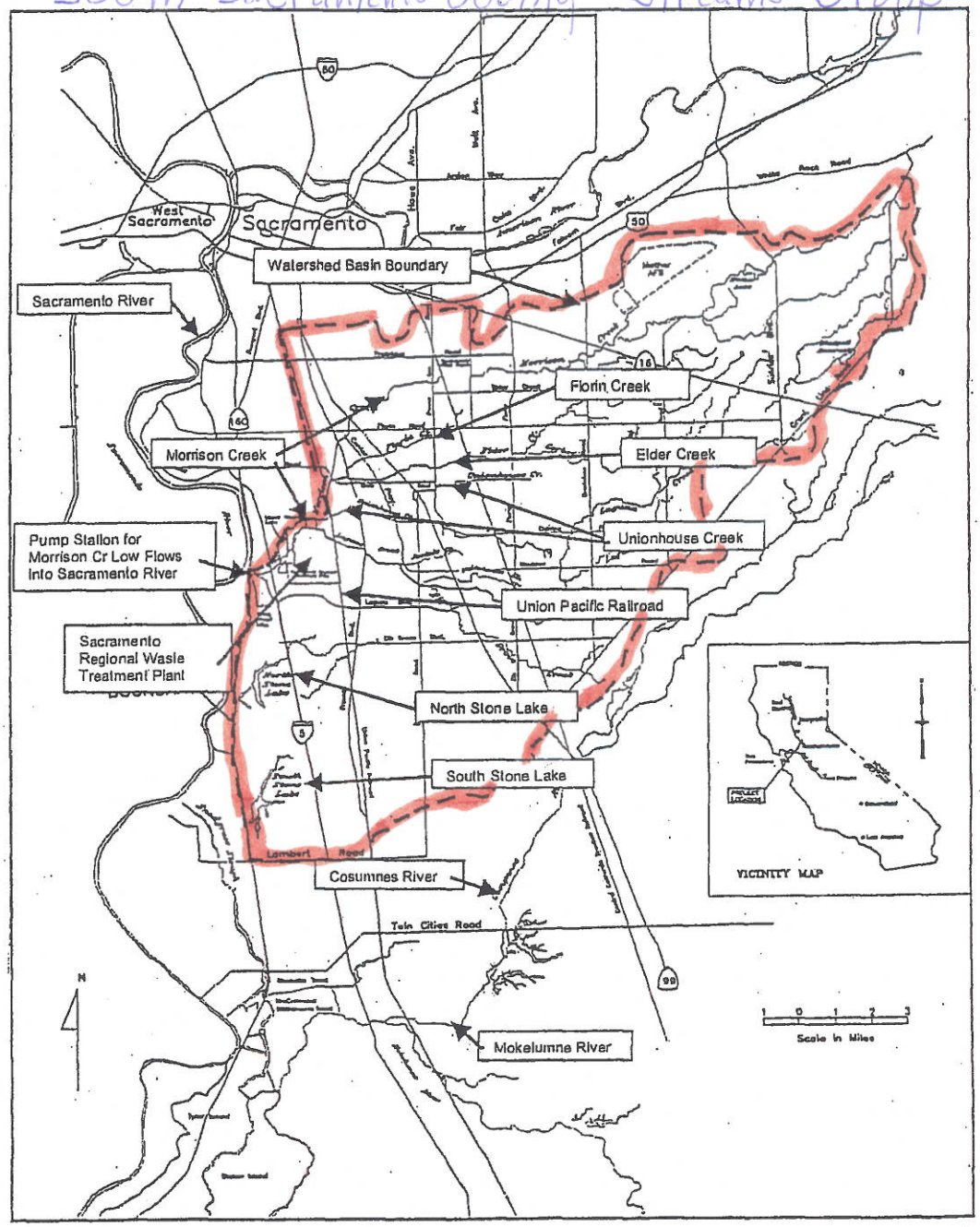
Attachment B
Location Map-1

Map courtesy of Sacramento Regional Transit District



Attachment B
Location Map-2

South Sacramento County - Streams Group



Attachment D

Approved Permit No. 18166-1, Fly Over Bridge

Meeting of the Central Valley Flood Protection Board
July 22, 2011

Staff Report
Sacramento Regional Transit District
Morrison Creek Bridge

1.0 – ITEM

Consider approval of Permit No. 18166-1 (Attachment B).

2.0 – APPLICANT

Sacramento Regional Transit District, Sacramento County

3.0 – LOCATION

The project is located in south Sacramento, over Morrison Creek east of Franklin Boulevard (Morrison Creek, Sacramento County, see Attachment A).

4.0 – DESCRIPTION

Construct light rail improvements adjacent to and over Morrison Creek in conjunction with the South Sacramento Corridor Phase 2 project to include embankment, bridge (aerial structure over Morrison Creek/UPRR), abutments, bents, temporary crossing, retaining walls, soundwalls, falsework, and relocate existing levee access road adjacent to Morrison Creek.

The proposed bridge will be located above and in the vicinity of the State/federal levees and floodwalls which were built as part of the South Sacramento County Streams Project along Morrison Creek. There would be no vegetation planting for this bridge project.

5.0 – PROJECT ANALYSIS

The bridge proposed by Sacramento Regional Transit District (RT) is to be a 32- ft wide and 1,317.5- ft long box girder completely spanning Morrison Creek, its levee and the UPRR embankment. The length of spans over Morrison Creek ranges from 108 ft to 175.5 ft. The pier has a 7 ft octagonal column with 108 inches CIDH concrete piles.

Title 23 Section 128 (10) (A) states that the bottom (soffit) of a proposed bridge must be at least three feet above the design flood plane, two feet for minor streams. The proposed bridge has a minimum 18.9 feet of vertical clearance above the existing west levee and 26.7 feet of vertical clearance above UPRR embankment.
The reach of proposed project is a well engineered channel with engineered levees and side slopes. There is no bank protection needed at the bridge due to low velocities caused by the backwater effects on the Beach-Stone Lakes and the lower reach of Morrison Creek.

5.1 – Hydraulic Analysis

Originally, the runoff discharge from the Morrison Creek Stream Basin drained into the Sacramento River. When levees of east Sacramento River were constructed, the flows were diverted into Beach-Stone Lakes. The most recent flooding occurred in 1982 and 1986. Those two floods had recurrence intervals of 25 years. The Camanche Reservoir on the Mokelumne River reduces flood hazards to the western portion of the Morrison Creek. It also reduces the backwater effect of the Mokelumne and Cosumnes Rivers on the Beach-Stone Lakes and the lower reach of Morrison Creek.

The discharge of the 100-yr flood at Morrison Creek used for the bridge design analysis is taken from the information provided by the U.S. Army Corps of Engineers (USACE). The datum elevation used for study is NGVD 29. A HEC-RAS model was used to analyze the output result of hydraulic conditions with existing conditions and proposed conditions.

There are two scenarios due to the backwater effect on the Beach-Stone Lakes and the lower reach of Morrison Creek; one is the 100-yr flood event with peak stage in Beach Lakes and concurrent flows in Morrison Creek (2A scenario) and the other is the case of 100-yr flood discharge at Morrison Creek with peak flows in Morrison Creek and concurrent stage in Beach Lakes (2B scenario).

The maximum water surface elevation (WSEL) occurs due to the backwater effect at Beach Lakes during the 100-yr flood event for the 2A scenario. The concurrent discharge in Morrison Creek is 6,875 cfs. The WSEL of the existing condition is 15.30 ft and the velocity ranges from 1.35 ft/s to 1.58 ft/s near the future bridge location. The WSEL of the proposed project condition is 15.31 ft and the velocity ranges from 1.35 ft/s to 1.58 ft/s near the bridge.

The 100-yr flood discharge at Morrison Creek for 2B scenario is estimated about 8,283 cfs. The water surface elevation (WSEL) is 11.46 ft and the velocity ranges from 2.42 ft/s to 2.83 ft/s near the bridge.

The WSEL of 15.31 ft (2A scenario) is used to calculate freeboard. The levee elevation of west bank is 21.34 ft and the freeboard is 6.03 ft. The velocity of 2B scenario (2.83 ft/s) is higher than that of 2A scenario (1.58 ft/s) and it is not significant to cause any

damage for levee and bridges. There is no bank protection needed at the bridge. In addition, bank protection already exists on the levees.

The proposed Regional Transit flyover bridge passes 100-yr flood discharge. The proposed project meets the Board's standards contained in Title 23, California Code, Article 8, Section 128(a)(10)(A) which states "The bottom members (soffit) of a proposed bridge must be at least three (3) feet above the design flood plane. The required clearance may be reduced to two (2) feet on minor streams at sites where significant amounts of stream debris are unlikely".

The scour and countermeasure analyses were estimated by HEC-18 model. The total scour of bridge is comprised of three components such as long-term aggradation and degradation, contraction scour and local scour. The total scour is about 8.0 ft for design discharge.

Based on these results, the proposed project will convey 100-yr base flood without significant damage either the flood plain or surrounding property.

5.2 – Geotechnical Analysis

This project has no significant geotechnical impacts to the existing streambank or the floodway. The distance of the bridge column from the levee toe is about 18 ft at waterside which meets the Board's standards with minimum distance of ten (10) feet beyond the levee toes. Excavation occurs at locations that are not critical to the integrity of the natural stream bank or creek. All fill, excavation, and temporary structures will be completed in compliance with Permit No. 18166-1 (see Attachment B) and Title 23.

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- The U. S. Army Corps of Engineers Section 208.10 letter has not been received but is expected to be received prior to the July 22, 2011 Board meeting which then will become Exhibit A of the permit.
- The endorsement letter of the Sacramento County was received on October, 2008.

7.0 – CEQA ANALYSIS

The Board, acting as a responsible agency under CEQA, has independently reviewed the Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) (September 1994), Supplemental Draft Environmental Impact

Statement/Subsequent Draft Environmental Impact Report (SDEIS/R) (SCH No. 1996052075, January 2007) and Supplemental Final Environmental Impact Statement/Subsequent Final Environmental Impact Report (SFEIS/R) (SCH No. 1996052075, September 2008) on the South Sacramento Corridor Phase 2 Project.

Sacramento Regional Transit, as the lead agency, determined that the project would not have a significant effect on the environment and adopted Resolution 08-10-0145 on October 27, 2008 (including Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program). The Notice of Determination was filed with the State Clearinghouse on October 31, 2008. The SDEIS/R, SFEIS/R, Resolution 08-10-0145 and Mitigation Monitoring Plan may be viewed or downloaded from the Central Valley Flood Protection Board website at http://www.cvfpb.ca.gov/meetings/2011/7-22-2011.cfm. The documents are also available for review in hard copy at the Board and County offices.

Impacts that can be Mitigated
The significant impacts and the mitigation measures to reduce them to less than significant are adopted in Sacramento Regional Transit Resolution 08-10-0145, dated October 27, 2008 (which includes a Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program). The significant impacts associated with the South Sacramento Corridor Phase 2 Project, are reduced to a less-than-significant level by mitigation measures identified in the MMRP and have been incorporated into the project.

Based on its independent review of the SDEIS/R, SFEIS/R and Sacramento Regional Transit Resolution 08-10-0145 the Board finds that for each of the significant impacts described, changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessens the significant environmental effects as identified in the SFEIS/R.

Significant Unavoidable Adverse Impacts of the Project
The following impacts of the proposed project remains significant following adoption and implementation of the mitigation measures described in the SFEIS/R:

The Locally Preferred Alternative Phase 2 (LPAP2) locates a 2,000 space parking structure just south of the main college entrance off of Bruceville Road and includes an extension of an internal CRC roadway to a new driveway on Old Calvine Road, about 500 feet west of Bruceville Road. The LPAP2 is projected to impact the intersection of Franklin Boulevard and Cosumnes River Boulevard. During the A.M. peak traffic hour, the intersection operating condition deteriorates by more than 5 seconds of delay, from 65.2 to 86.0 seconds. During the P.M. peak traffic hour, the intersection operating condition deteriorates by more than 5 seconds of delay, from 44.2 to 64.8 seconds.

The Board also finds that the specific economic, legal, social, technological or other benefits of the project outweigh the unavoidable adverse environmental effects, which are thus considered to be “acceptable.”

Statement of Overriding Considerations
Sacramento Regional Transit adopted Resolution 08-10-0145 including the Statement of Overriding Considerations. The Board concurs with this Statement.

The Board has independently considered the significant and unavoidable environmental impacts of the proposed project. The Board has also considered the benefits of the project, including expanding transit service in South Sacramento; developing and implementing transportation policies and services that reinforce local and regional land use plans and policies. The Board finds that economic, legal, social, technological, or other benefits of the proposed project outweigh the unavoidable adverse environmental effects of the project, and the adverse environmental effects are considered acceptable when these benefits of the project are considered.

The documents and other materials which constitute the record of the Central Valley Flood Board’s proceedings in this matter are in the custody of Jay Punia, Executive Officer, Central Valley Flood Protection Board, 3310 El Camino Ave., Rm. 151, Sacramento, California 95821.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

   The Board will make its decision based on the evidence in the permit application and attachments, this staff report, and any other evidence presented by any individual or group.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

   The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the entire State Plan of Flood Control:

   This project has no negative impacts on the State Plan of Flood Control. Both hydraulic and structural impacts from the project construction are negligible.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

   Climate change issues have not been taken into account in the hydraulic analysis for this project and the water surface elevation change resulting from change in climate for the site is unknown. However, the more than 18 feet of vertical clearance of the bridge from the project levee, it is not foreseeable that sea level rise as a result of climate change would have an adverse effect to both the bridge and the project levee. There are no other foreseeable projected future events that would impact this project.

9.0 – STAFF RECOMMENDATION

Staff recommends that the Board adopt the CEQA findings, approve Permit No. 18166-1 conditioned upon receipt of a favorable U.S. Army Corps of Engineers' 208.10 comment letter and direct the Executive Officer to take necessary actions to execute the permit and to file a Notice of Determination with the State Clearinghouse.

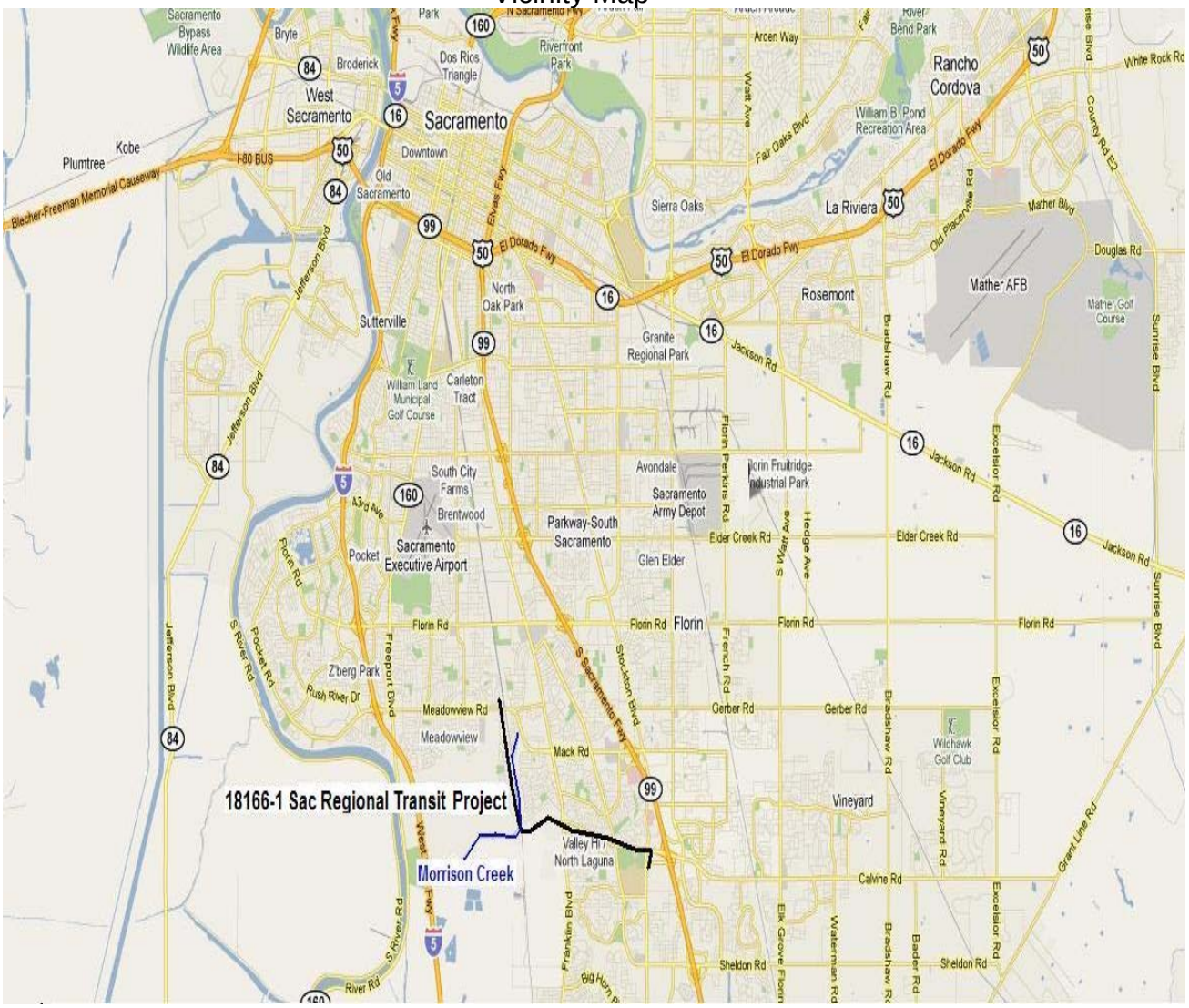
10.0 – LIST OF ATTACHMENTS

A. Location Maps and Photos
B. Draft Permit No. 18166-1
C. Regional Transit Bridge at Morrison Creek General Plan & Bridge Pier Plan
D. HEC-RAS Model Result

Design Review:	Sungho Lee
Environmental Review:	James Herota
Document Review:	David Williams, Dan Fua, Len Marino

ATTACHMENT A

Vicinity Map



ATTACHMENT A

Project Location Map

ATTACHMENT A

Sacramento Regional Transit Light Rail Project over Morrison Creek

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY

THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18166-1 BD

This Permit is issued to:

Sacramento Regional Transit District
2811 O Street
Sacramento, California 95816-6410

Construct light rail improvements adjacent to and over Morrison Creek east of Franklin Boulevard in conjunction with the South Sacramento Corridor Phase 2 project; construct embankment, bridge (aerial structure over Morrison Creek/UPRR), abutments, bents, temporary crossing, retaining walls, soundwalls, falsework, and relocate existing levee access road adjacent to Morrison Creek. The project is located in Sacramento extending south from Meadowview Road to Bruceville Road (Section 8&9, T7N, R5E, MDB&M, Morrison Creek, Sacramento County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

_____
Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to

change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18166-1 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

FOURTEEN: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Department of Water Resources or any other agency responsible for maintenance.

FIFTEEN: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

SIXTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion

SEVENTEEN: The Central Valley Flood Protection Board and Department of Water Resources shall not be held liable for any damages to the permitted encroachment(s) resulting from flood fight, operation, maintenance, inspection, or emergency repair.

EIGHTEEN: The permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

NINETEEN: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

TWENTY: The permittee should contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250, as compliance with Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act may be required.

TWENTY-ONE: The permittee shall be responsible for repair of any damages to the Morrison Creek and other flood control facilities due to construction, operation, or maintenance of the proposed project.

TWENTY-TWO: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

TWENTY-THREE: The permittee shall provide supervision and inspection services acceptable to the Central Valley Flood Protection Board. A professional engineer registered in the State of California shall certify that all work was inspected and performed in accordance with submitted drawings, specifications, and permit conditions.

TWENTY-FOUR: Upon completion of the project, the permittee shall submit as-built drawings to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite Rm 256, Sacramento, California 95821.

TWENTY-FIVE: No construction work of any kind shall be done during the flood season from November 1 to April 15 without prior approval of the Central Valley Flood Protection Board.

TWENTY-SIX: The proposed access ramp shall be graded to direct all surface drainage away from the levee section.

TWENTY-SEVEN: At all times during construction, at least one lane of the levee crown roadway shall be kept clear for vehicular access.

TWENTY-EIGHT: No excavation shall be made or remain in the levee section during the flood season from November 1 to April 15 without prior approval of the Central Valley Flood Protection Board.

TWENTY-NINE: A temporary bench mark, set to a known datum, shall be placed at the project site during construction.

THIRTY: All cleared trees and brush shall be completely burned or removed from the floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1 to April 15.

THIRTY-ONE: Temporary staging, formwork, stockpiled material and/or equipment shall not remain in the floodway during the flood season from November 1st to April 15.

THIRTY-TWO: The work area shall be restored to the condition that existed prior to start of work.

THIRTY-THREE: Trees, brush, sediment, and other debris shall be kept cleared from the bridge site and disposed of outside the floodway to maintain the design flow capacity and flowage area.

THIRTY-FOUR: If the bridge is damaged to the extent that it may impair the channel or floodway capacity, it shall be repaired or removed prior to the next flood season.

THIRTY-FIVE: All debris generated by this project shall be disposed of outside the adopted plan of flood control and/or the flood control project works.

THIRTY-SIX: There shall be no plantings within the project area under this permit, except that of native grasses, which may be required for slope protection.

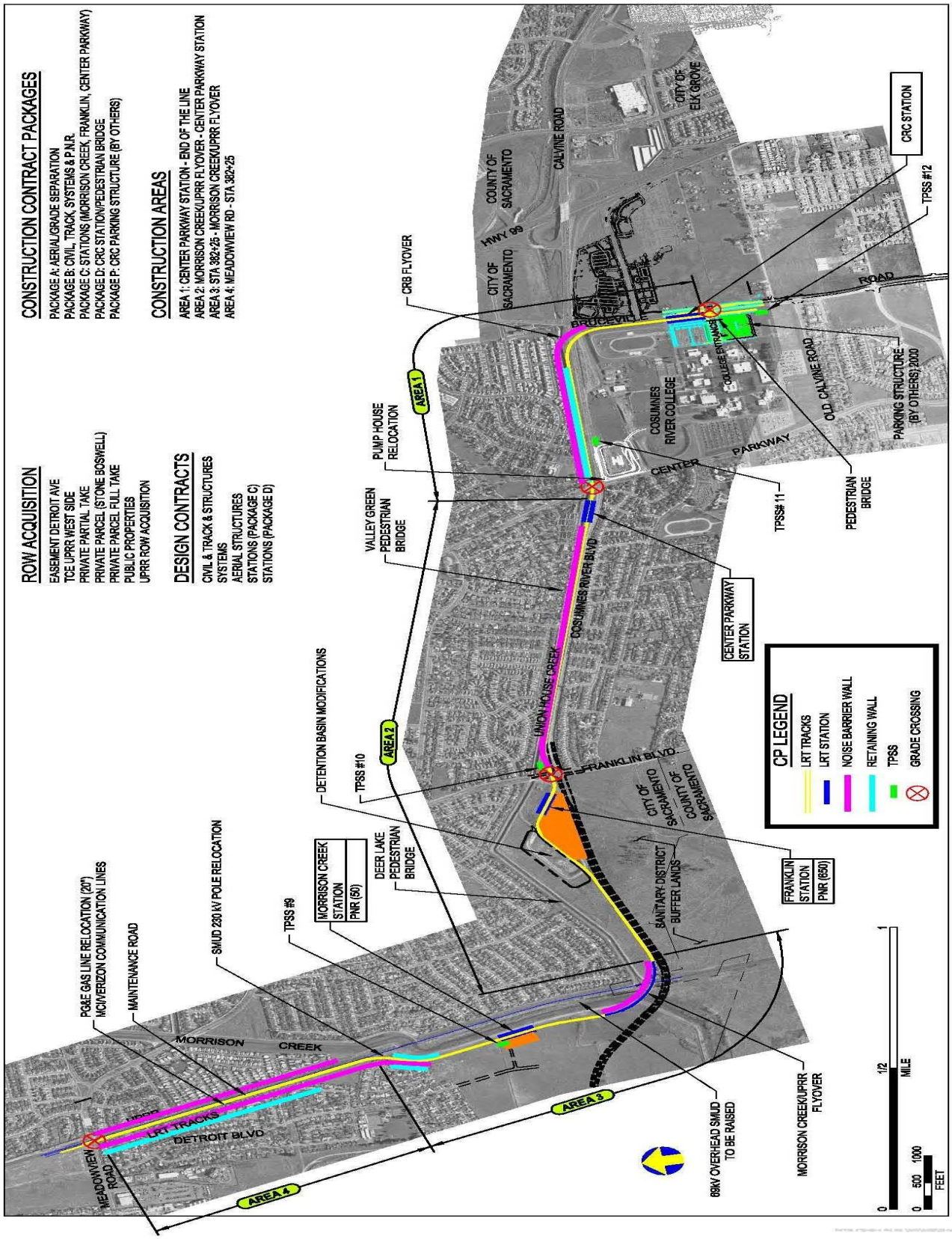
THIRTY-SEVEN: If the permitted encroachment result in an adverse hydraulic impact, the permittee shall provide appropriate mitigation measures, to be approved by the Central Valley Flood Protection Board, prior to implementation of mitigation measures.

THIRTY-EIGHT: The mitigation measures approved by the CEQA lead agency and the permittee are found in its Mitigation and Monitoring Reporting Program (MMRP) adopted by the CEQA lead agency. The permittee shall implement all such mitigation measures.

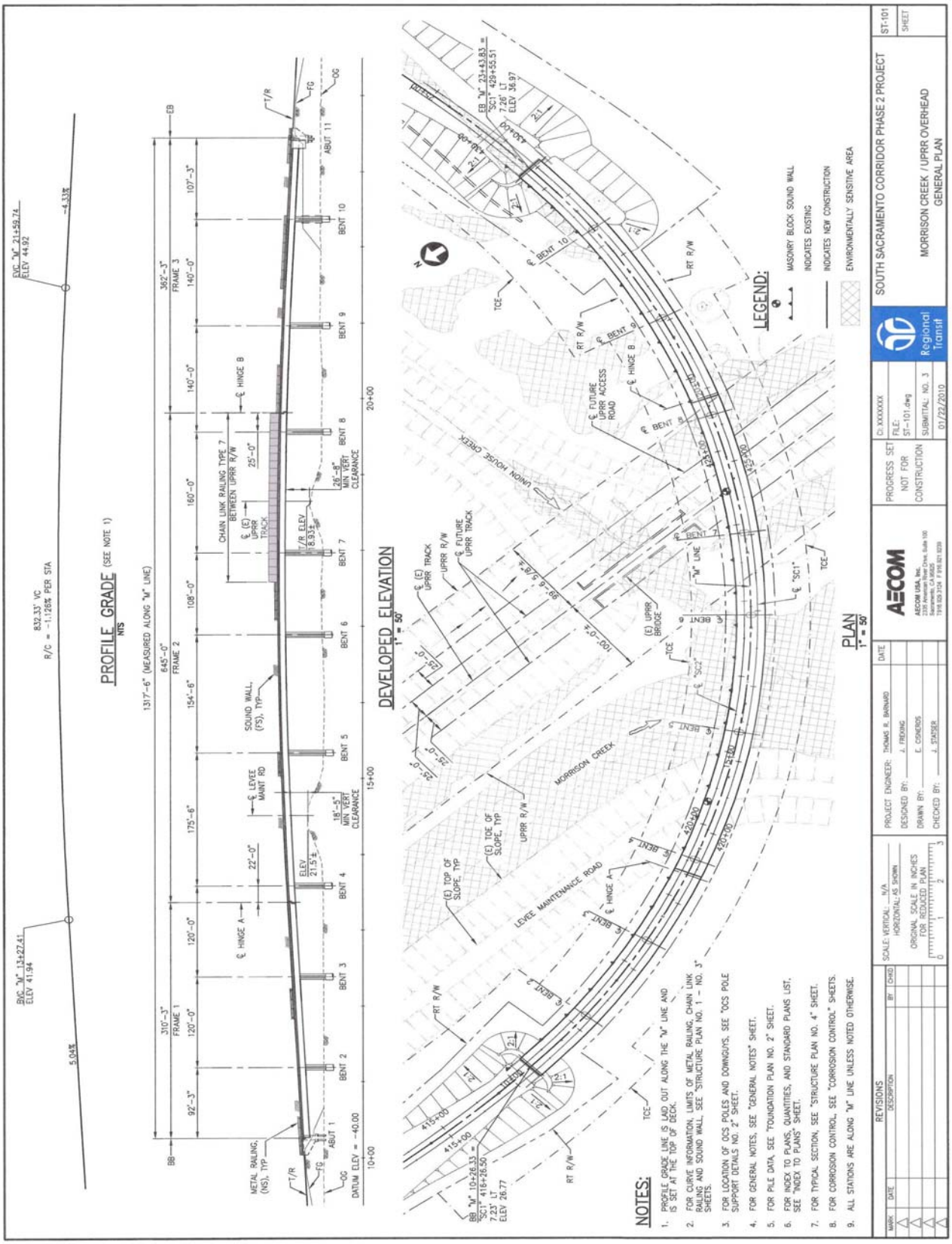
THIRTY-NINE: The permittee shall comply with all conditions set forth in the letter from the U.S. Army Corps of Engineers dated XXXXXX, which is attached to this permit as Exhibit A and is incorporated by reference.

ATTACHMENT C

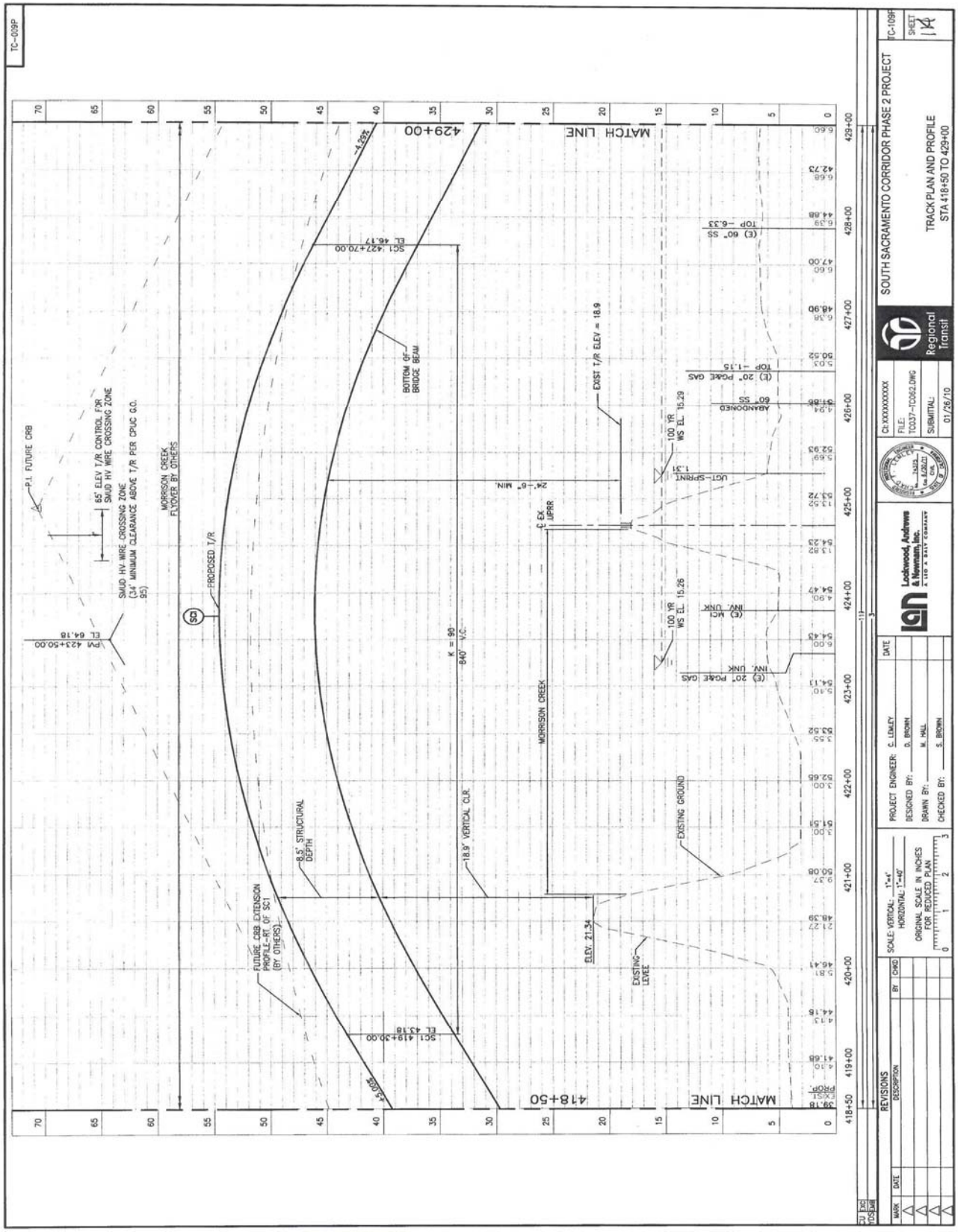
Aerial Map of Project



Morrison Creek Bridge Plan

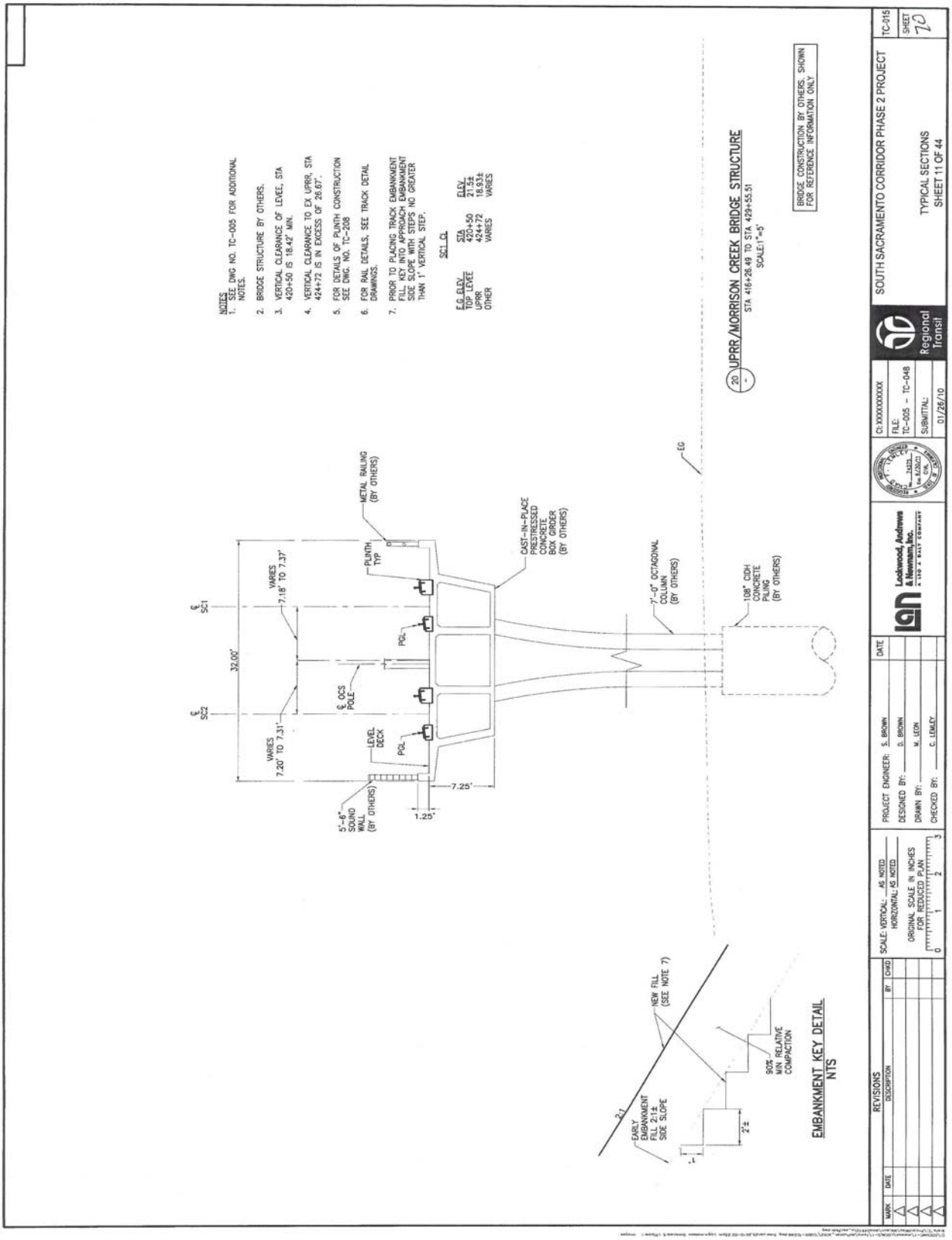


ATTACHMENT C



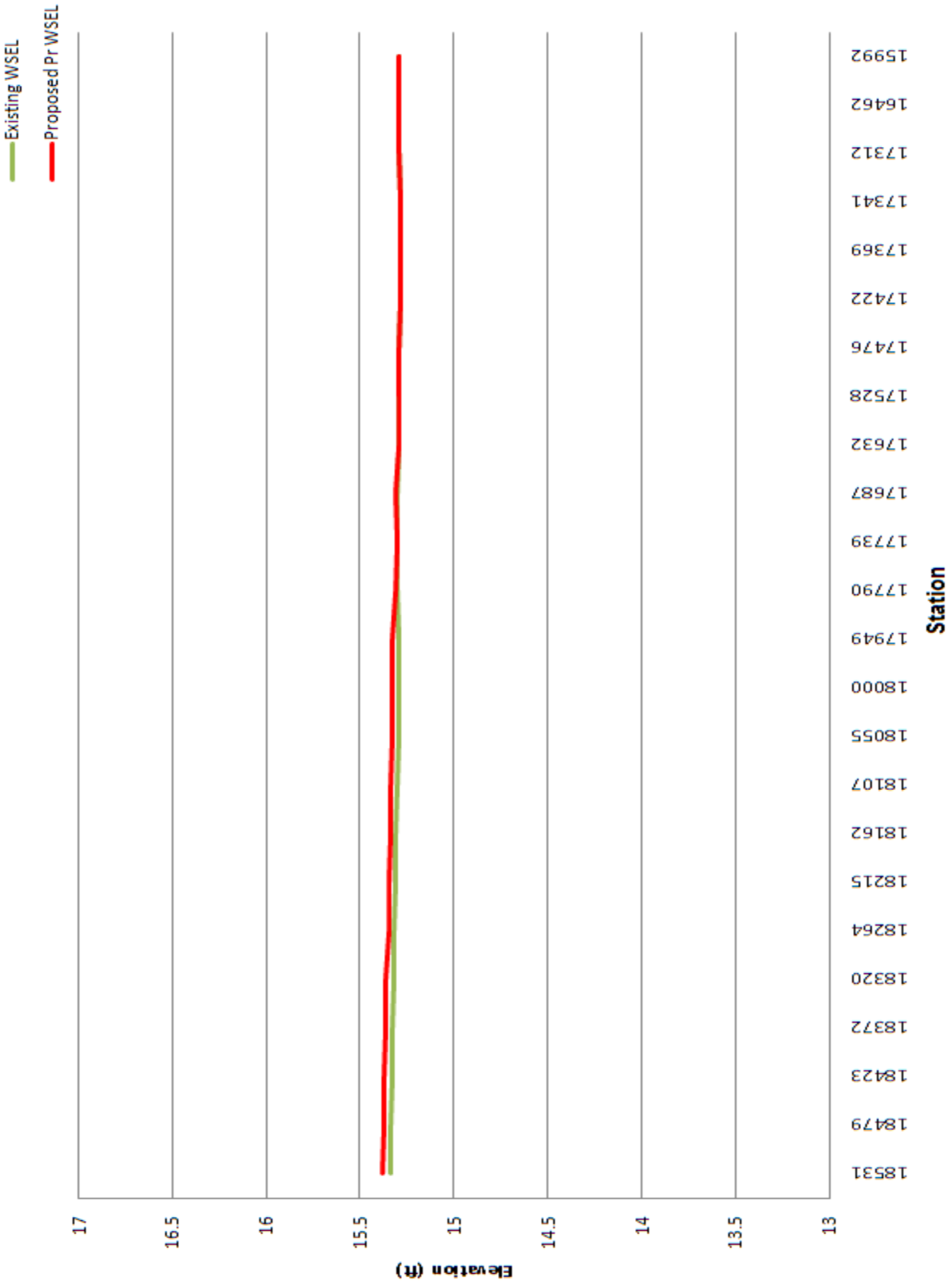
ATTACHMENT C

Bridge Pier Plan over Morrison Creek



ATTACHMENT D

WSEL Profile-Existing & Proposed Condition



Attachment E

Proposed Plans:

a. **Overall plan view**
b. **Phase 2 project**
c. **Cross Sections; Sheets 68, 77**
d. **Track plans; sheets 108, 109, 110, 111, 115 to 126**
e. **Valley Green Drive Pedestrian Bridge; Sheet 375**

SOUTH SACRAMENTO CORRIDOR PHASE 2
UTILITY RELOCATION MAP

THE South Line PHASE 2

REGIONAL TRANSIT

MEADOWVIEW ROAD

20" PG&E GAS LINE

UPRR

LRT TRACKS

DETROIT BLVD

MORRISON CREEK

UPRR CORRIDOR

TPSS #9

MORRISON CREEK STATION

PNR (50)

DETENTION BASIN MODIFICATIONS

TPSS #10

DEER LAKE PEDESTRIAN BRIDGE

VALLEY GREEN PEDESTRIAN BRIDGE

SASD PUMP HOUSE RELOCATION

CRB FLYOVER

SMUD 69KV/12KV

FUTURE DETROIT BLVD EXTENSION (BY OTHERS)

SMUD POLE RELOCATIONS

MORRISON CREEK/UPRR FLYOVER

PERMITTED UNDER PERMIT NO. 18166-1

SANITARY DISTRICT BUFFER LANDS

CITY OF SACRAMENTO

COUNTY OF SACRAMENTO

FRANKLIN BLVD

UNION HOUSE CREEK

COSUMNES RIVER BLVD

FRANKLIN STATION

PNR (650)

CENTER PARKWAY STATION

TPSS# 11

PEDESTRIAN BRIDGE

CITY OF SACRAMENTO

HWY 99

COUNTY OF SACRAMENTO

CALVINE ROAD

BRUCEVILLE

COSUMNES RIVER COLLEGE

CITY OF ELK GROVE

CENTER PARKWAY

COLLEGE ENTRANCE

OLD CALVINE ROAD

PARKING STRUCTURE (BY OTHERS) 2000

ROAD

(E) PG&E TOWERS

TPSS #12

CRC STATION

CP LEGEND

- LRT TRACKS
- LRT STATION
- TPSS
- GRADE CROSSING

0 1/2 1 MILE

0 500 1000 FEET

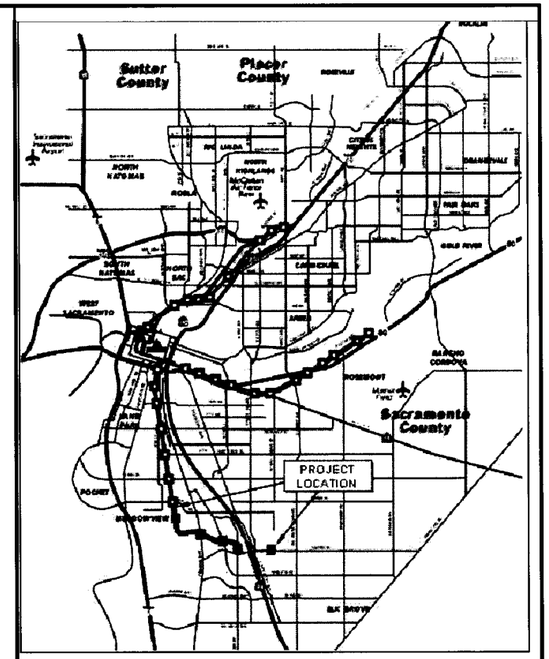
SEPTEMBER 14, 2011
REVISION 0.2

SACRAMENTO REGIONAL TRANSIT DISTRICT

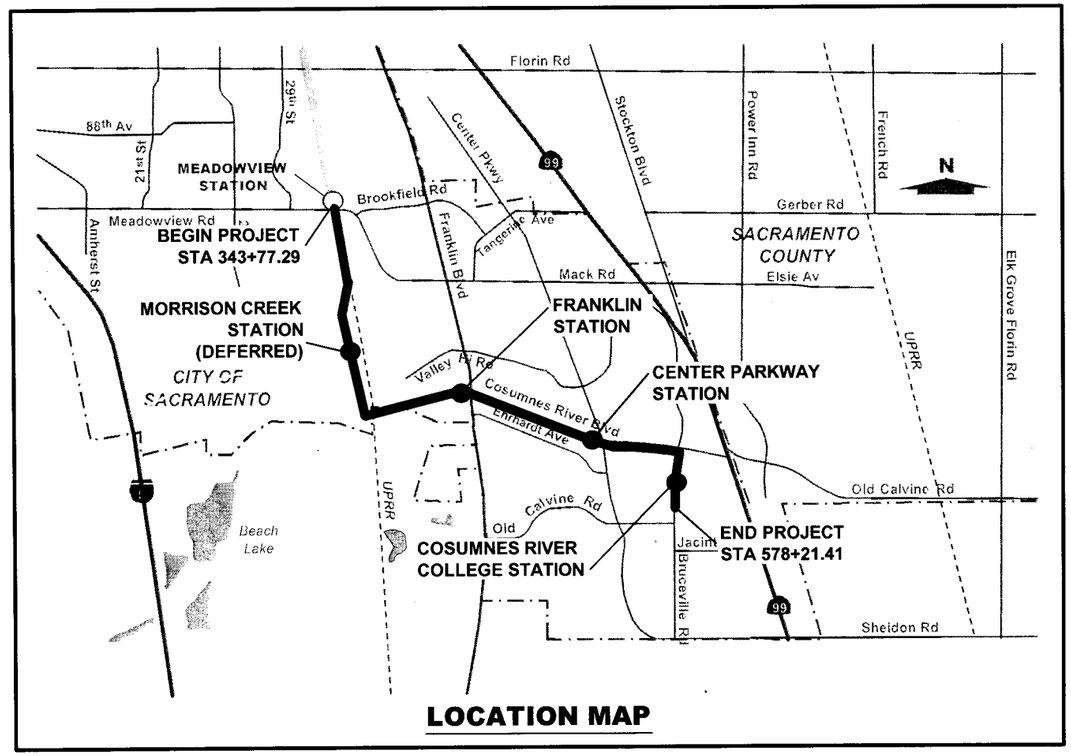
ADVANCED PRELIMINARY ENGINEERING PLANS FOR CONSTRUCTION OF SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT DESIGN SUBMITTAL #3

TO BE SUPPLEMENTED BY
CALIFORNIA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS AND STANDARD SPECIFICATIONS
DATED MAY 2006, AND
CITY OF SACRAMENTO STANDARD SPECIFICATIONS
DATED JUNE 2007

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT



VICINITY MAP



LOCATION MAP

DARRYL ABANSADO
DIRECTOR OF CIVIL & TRACK DESIGN
SACRAMENTO REGIONAL TRANSIT DISTRICT

SACRAMENTO REGIONAL TRANSIT DISTRICT — DATE

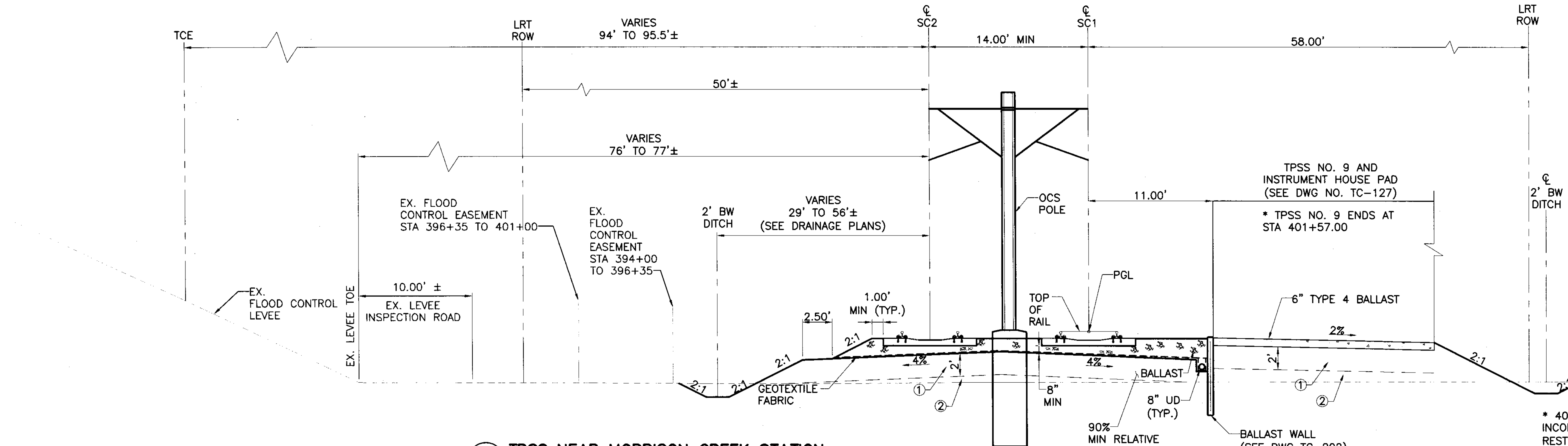
CITY OF SACRAMENTO PUBLIC WORKS — DATE

CITY OF SACRAMENTO UTILITIES — DATE

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD

G-001

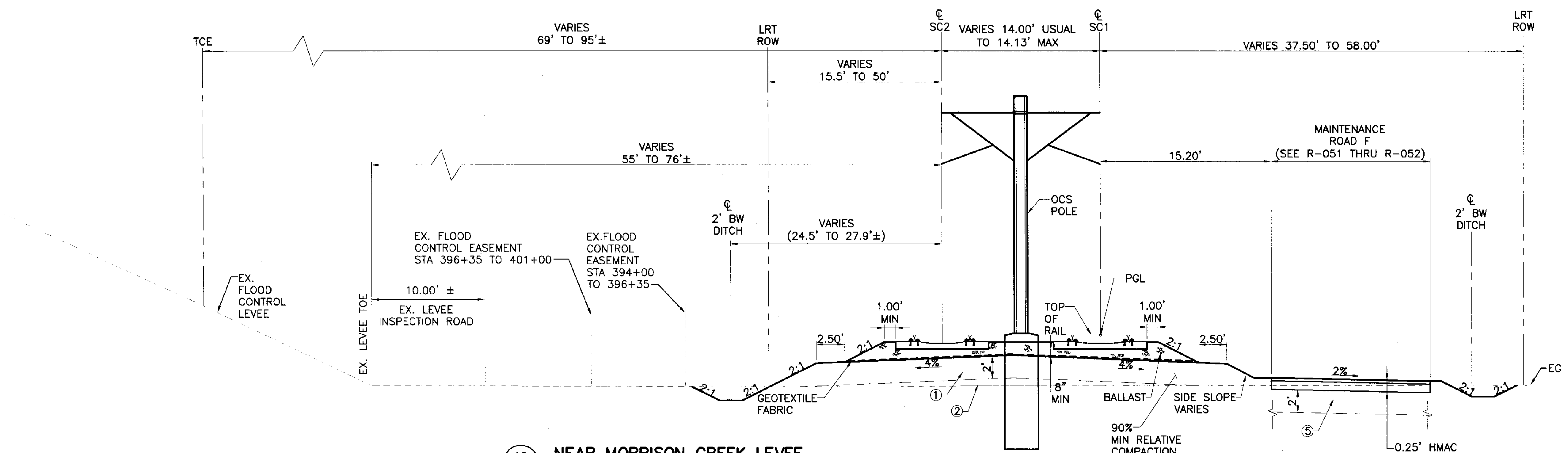
1



17 TPSS NEAR MORRISON CREEK STATION

STA 400+76.00 TO 401+80.49
SCALE:1"=5'

NOTES:
1. SEE DWG NO. TC-005 FOR ADDITIONAL NOTES.
2. MAINTENANCE ROAD B NORTH OF 394+16, MAINTENANCE ROAD F SOUTH OF 394+48.



16 NEAR MORRISON CREEK LEVEE

STA 393+00 TO STA 394+16.22
STA 394+52.23 TO STA 400+76.00
SCALE:1"=5'

① PLACE NON-EXPANSIVE SOIL OR LIME/FLYASH-TREATED GENERAL FILL IN TRACK EMBANKMENT FOR A DEPTH OF 2-FEET BELOW BOTTOM OF BALLAST FOR A MINIMUM WIDTH OF 6' OUTSIDE THE CENTERLINE OF EACH TRACK.

② PLACE SELECT FILL IN THE TRACK EMBANKMENT IN THE ZONE FROM 2-FEET TO 5-FEET BELOW BOTTOM OF BALLAST LINE FOR A MINIMUM WIDTH OF 6' OUTSIDE THE CENTERLINE OF EACH TRACK.

⑤ UPPER 2 FEET NON-EXPANSIVE SOIL WITH R-VALUE ≥ 15, A MINIMUM WIDTH OF 2' OUTSIDE EDGE OF PAVEMENT.

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: AS NOTED
HORIZONTAL: AS NOTED
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: S. BROWN
DESIGNED BY: D. BROWN
DRAWN BY: M. LEON
CHECKED BY: C. LEMLEY
DATE

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

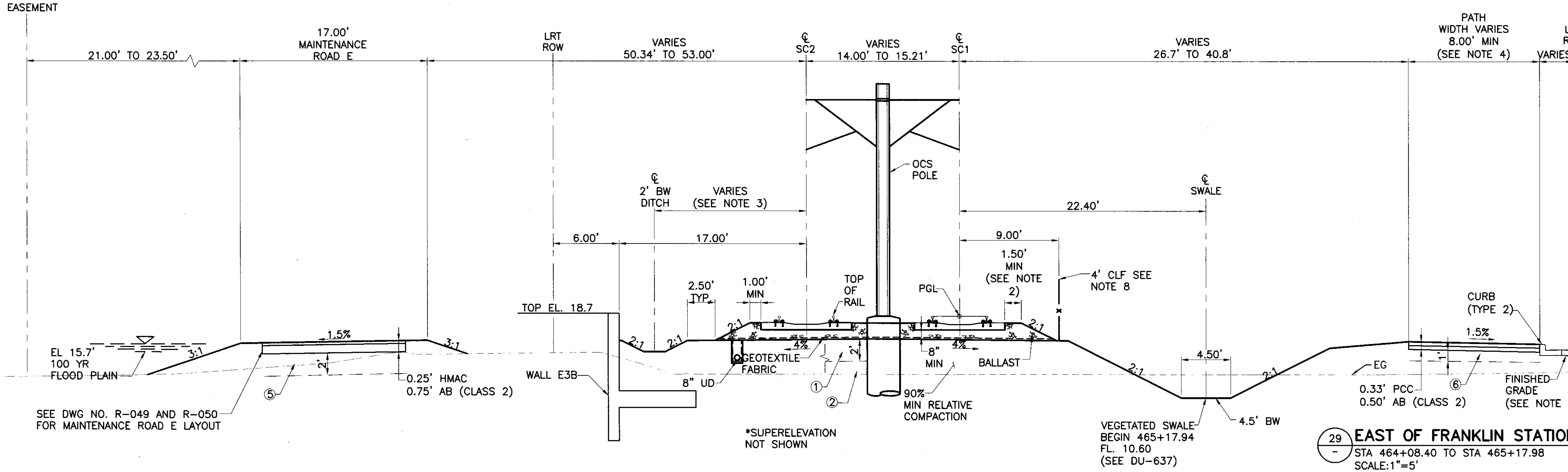
CI: XXXXXXXXXX
FILE: TC-005 – TC-048
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TYPICAL SECTIONS
SHEET 9 OF 44

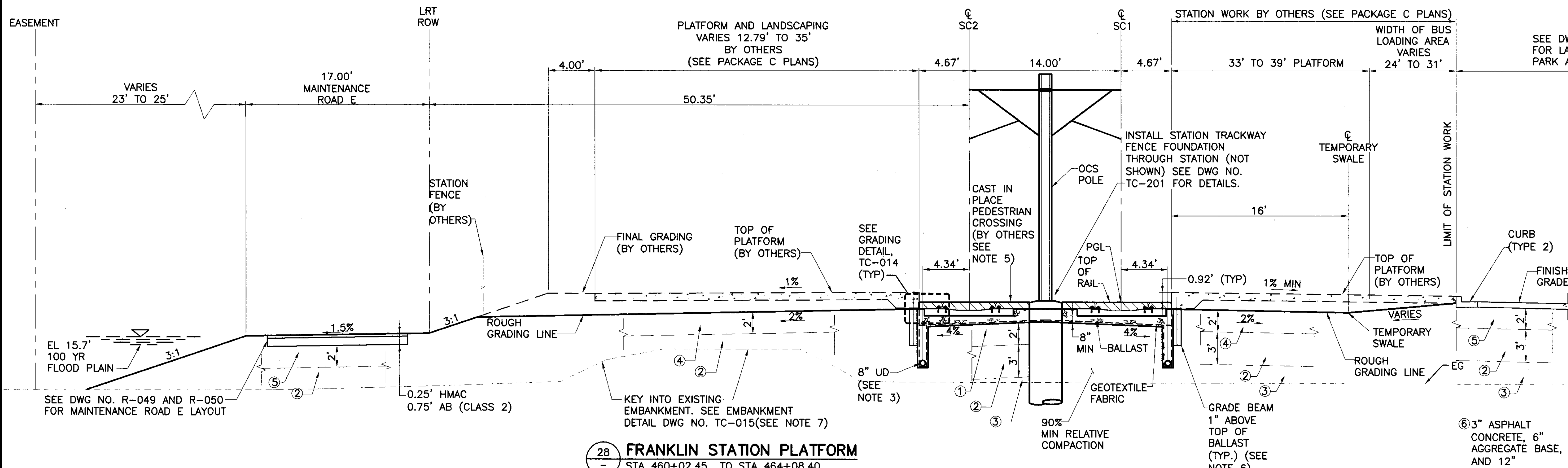
TC-013
SHEET 68



(29/–) EAST OF FRANKLIN STATION
STA 464+08.40 TO STA 465+17.98
SCALE: 1"=5'

NOTES:

1. SEE DRAWING TC-005 FOR ADDITIONAL NOTES.
2. 1.5' MIN SHOULDER REQUIRED FOR RADIUS LESS THAN 1000'.
3. SEE DRAINAGE PLANS FOR LIMITS AND PROFILES OF DITCHES, AND UNDERDRAINS.
4. SEE FRANKLIN PARKING LOT PLANS FOR LAYOUT.
5. 20' CAST-IN-PLACE PEDESTRIAN CROSSING LOCATED ON BOTH ENDS OF STATION PLATFORMS, SEE PACKAGE C PLANS.
6. FOR STATION GRADE BEAM DETAIL, SEE DWG. NO.207.
7. PRIOR TO PLACING TRACK EMBANKMENT FILL, KEY INTO APPROACH EMBANKMENT SIDE SLOPE WITH STEPS NO GREATER THAN 1' VERTICAL STEP.
8. SEE DWG NO. TC-201 FOR FENCE DETAILS SEE TRACK PLAN AND PROFILE FOR LIMITS.



(28/–) FRANKLIN STATION PLATFORM
STA 460+02.45 TO STA 464+08.40
SCALE: 1"=5'

① PLACE NON-EXPANSIVE SOIL OR LIME/FLYASH-TREATED GENERAL FILL IN TRACK EMBANKMENT FOR A DEPTH OF 2-FEET BELOW BOTTOM OF BALLAST FOR A MINIMUM WIDTH OF 6' OUTSIDE THE CENTERLINE OF EACH TRACK.

② PLACE SELECT FILL IN THE TRACK EMBANKMENT IN THE ZONE FROM 2-FEET TO 5-FEET BELOW BOTTOM OF BALLAST LINE FOR A MINIMUM WIDTH OF 6' OUTSIDE THE CENTERLINE OF EACH TRACK.

③ PLACE GENERAL FILL IN THE TRACK EMBANKMENT IN THE ZONE DEEPER THAN 5-FEET BELOW BOTTOM OF BALLAST LINE.

④ UPPER 2 FEET EMBANKMENT NON-EXPANSIVE SOIL, A MINIMUM OF 3' PAST EDGE OF PLATFORM.

⑤ UPPER 2 FEET NON-EXPANSIVE SOIL WITH R-VALUE ≥ 15, A MINIMUM WIDTH OF 2' OUTSIDE EDGE OF PAVEMENT.

⑥ 3" ASPHALT CONCRETE, 6" AGGREGATE BASE, AND 12" NON-EXPANSIVE SOIL.

MARK	DATE	REVISIONS DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: AS NOTED
HORIZONTAL: AS NOTED
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: S. BROWN
DESIGNED BY: D. BROWN
DRAWN BY: M. LEON
CHECKED BY: C. LEMLEY
DATE

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

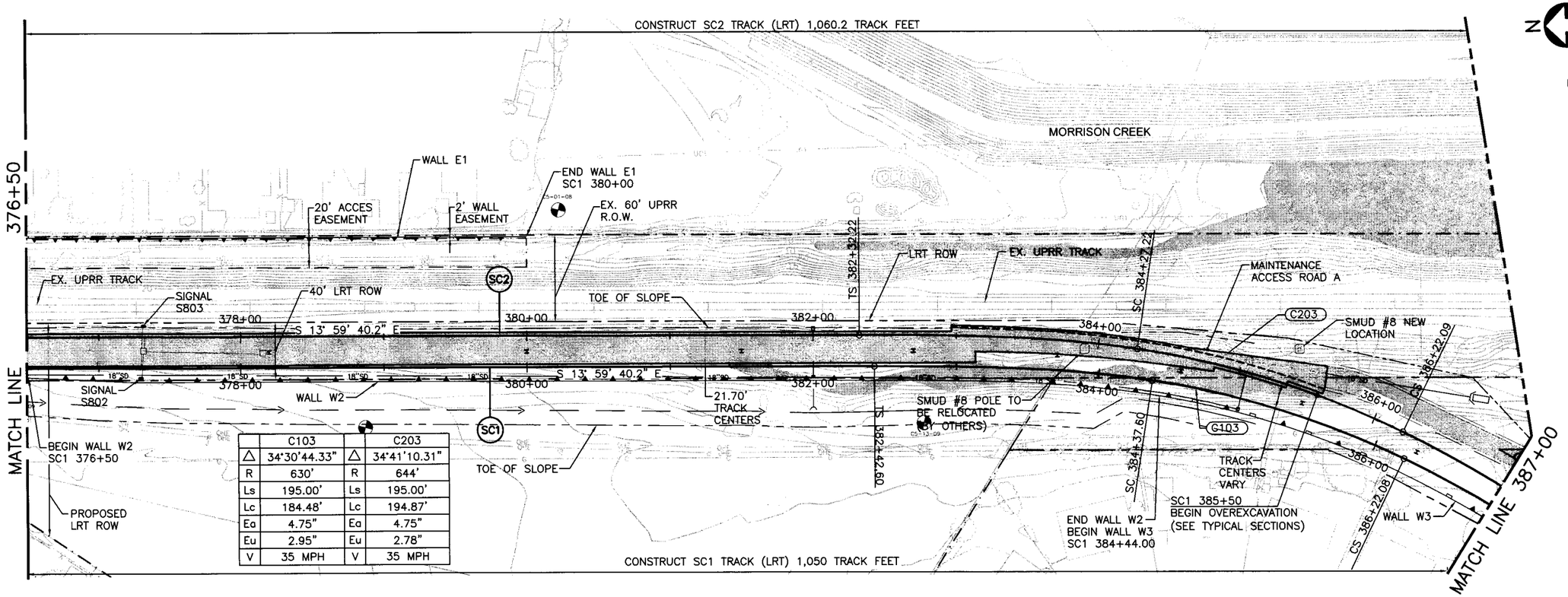
CI: XXXXXXXXXX
FILE: TC-005 – TC-048
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

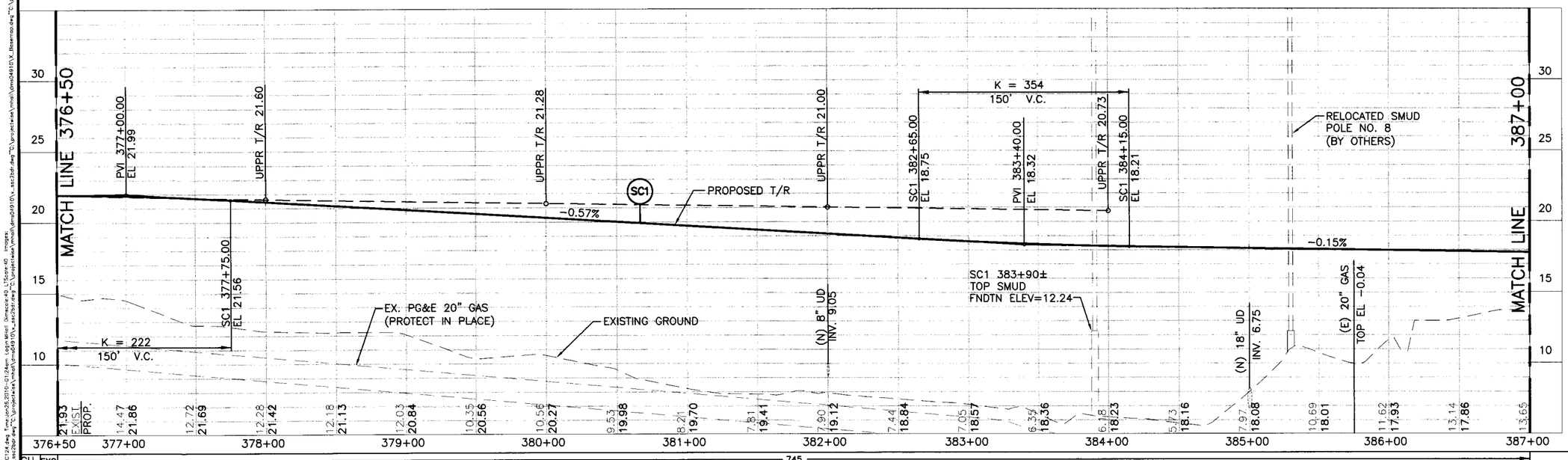
TYPICAL SECTIONS
SHEET 18 OF 44

TC-022
SHEET 77



	C103		C203
△	34°30'44.33"	△	34°41'10.31"
R	630'	R	644'
Ls	195.00'	Ls	195.00'
Lc	184.48'	Lc	194.87'
Ea	4.75"	Ea	4.75"
Eu	2.95"	Eu	2.78"
V	35 MPH	V	35 MPH

NOTES:
1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. SEE DWG. NO. R-042 FOR DETAILS OF MAINTENANCE ACCESS ROAD A CROSSING.



REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 376+50 TO 387+00

TC-105
SHEET 103

CONSTRUCT SC2 TRACK (LRT) 710.9 TRACK FEET

CONSTRUCT SC2 TRACK (LRT) 304.7 TRACK FEET

CONSTRUCT SC2 GRADE CROSSING (LRT) 24.0 TRACK FEET

	C104		C204
△	34°24'40.73"	△	34°35'06.72"
R	595'	R	581'
Ls	247.94'	Ls	267.86'
Lc	120.38'	Lc	103.78'
Ea	5.50"	Ea	5.50"
Eu	2.65"	Eu	2.85"
V	35 MPH	V	35 MPH

	C104A		C204A
△	3°44'31.62"	△	3°44'31.62"
R	2900'	R	2900'
Ls	129.00'	Ls	129.00'
Lc	60.41'	Lc	60.41'
Ea	2.00"	Ea	2.00"
Eu	2.13"	Eu	2.13"
V	55 MPH	V	55 MPH

MATCH LINE 387+00

MAINTENANCE ROAD A

SRS 388+17.09

SRS 388+17.08

LRT ROW

PROPOSED LRT EASEMENT

"EX. LEVEE" EMBANKMENT

MORRISON CREEK

WALL W3

TOE OF SLOPE

CONSTRUCT PROPOSED ACCESS ROAD PRIOR TO DEMOLISHING EX. (SEE NOTE 3)

EX. LEVEE

PROPOSED LEVEE ACCESS ROAD

LEVEE INSPECTION ROAD

77' PROPOSED LRT EASEMENT

TOE OF SLOPE

(N) 18" SD

INSTALL DOUBLE PIPE GATE

EX. FLOOD CONTROL EASEMENT

TRACK CENTERS VARY

WALL W4

END WALL W4 SC1 393+00.00

END WALL W3 SC1 391+68.00

BEGIN WALL W4 SC1 391+68.00

SC1 392+00 END OVER EXCAVATION (SEE TYPICAL SECTIONS)

MAINTENANCE ROAD B (SEE NOTE 2)

MAINTENANCE ROAD F (SEE NOTE 5)

25' PROPOSED TEMPORARY CONSTRUCTION EASEMENT

CONSTRUCT SC1 TRACK (LRT) 716.2 TRACK FEET

CONSTRUCT SC1 TRACK (LRT) 301.8' TRACK FEET

CONSTRUCT SC1 GRADE CROSSING (LRT) 32.0 TRACK FEET

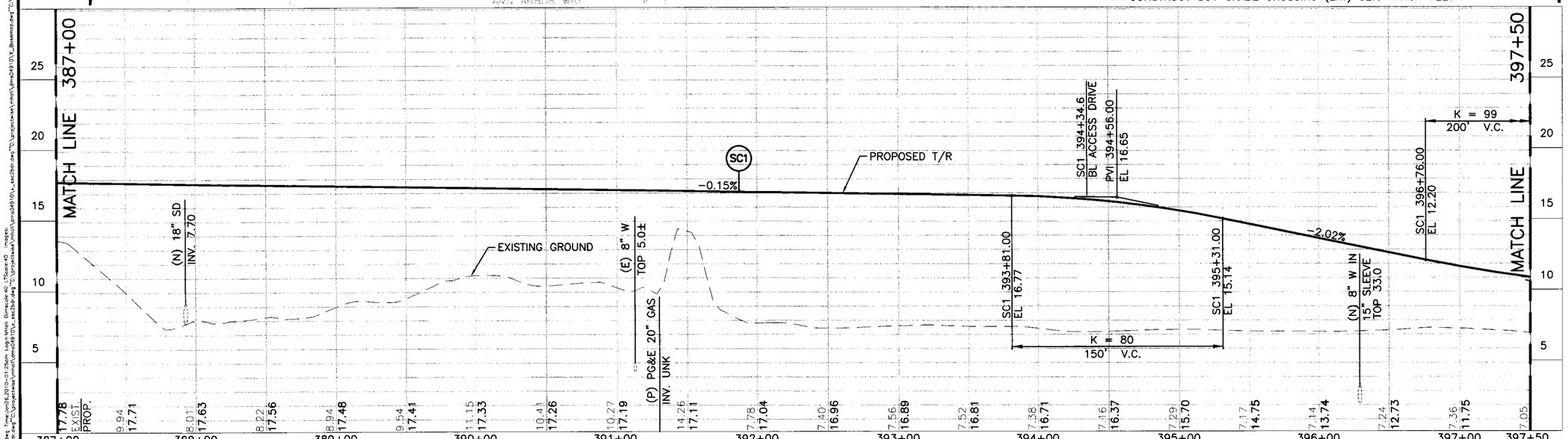
ANN ARBOR WAY

MATCH LINE 397+50

N

NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. SEE DWG. NO. R-043 FOR DETAILS OF MAINTENANCE ROAD B.
3. CONTRACTOR MUST PROTECT EXIST. LEVEE DURING REMOVAL OF EX. ACCESS ROAD. REDRESS SLOPE TO MATCH ADJACENT SIDE SLOPE.
4. SEE DWG. NO. R-042 FOR DETAILS OF MAINTENANCE ACCESS ROAD A.
5. SEE DWG. NO. R-051 AND R-052 FOR DETAILS OF MAINTENANCE ROAD F.



CU	EXC	1013
YDS	EMB	7160

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: C. LEMLEY
DESIGNED BY: D. BROWN
DRAWN BY: M. HALL
CHECKED BY: S. BROWN

DATE

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER
CHAD T. LEMLEY
No. 74375
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 387+00 TO 397+50

TC-106
SHEET L09

CONSTRUCT SC2 TRACK (LRT) 1,049.2 TRACK FEET

EX. LEVEE

EX. LEVEE

PROPOSED LRT EASEMENT

45' EXIST FLOOD CONTROL EASEMENT

95' PROPOSED LRT EASEMENT

TOE OF SLOPE

C204B

C104B

SC 397+88.16

TS 398+39.66

SC 399+68.66

GS 400+55.19

(N) 18" SD

END BALLAST WALL SC1 401+81.50

BEGIN BALLAST WALL SC1 400+76

SC2

SIGNAL S849

TPSS NO. 9

INSTRUMENT HOUSE S849

TRACTION POWER SUBSTATION

SEE DWG. NO. R-051 AND R-052 FOR LIMITS OF MAINTENANCE ACCESS ROAD SITE F.

SEE DWG TC-127 FOR LAYOUT OF FENCE IN THIS AREA

LINEAR DEPRESSION

BEGIN GRADE BEAM STA 401+90, 18.67' LT

SEE DWG. NO. TC-203 FOR AC PEDESTRIAN CROSSING DETAIL(TYP.)

SEE DWG. NO. TC-201 FOR FENCE FOUNDATION DETAIL

END GRADE BEAM STA 405+83, 18.67' LT

MORRISON CREEK STATION (SEE STATION PLANS) DEFERRED

TS 406+33.92

SC 407+84.92

SIGNAL S858

TRACK CENTERS VARY

SC1

DETENTION BASIN (DEFERRED)

ST 401+84.19

ST 401+76.82

BEGIN GRADE BEAM STA 401+90.50, 4.67' RT

14.00' TRACK CENTERS

END GRADE BEAM STA 405+83, 4.67' RT

TS 406+38.07

SC 407+23.02

12"SD

18"SD

MORRISON CREEK STATION

25' TEMPORARY CONSTRUCTION EASEMENT

CONSTRUCT SC1 TRACK (LRT) 1,050 TRACK FEET

MATCH LINE

MATCH LINE

397+50

408+00

S 10° 09' 05.0"E

S 13° 53' 36.6" E

398+00

400+00

402+00

404+00

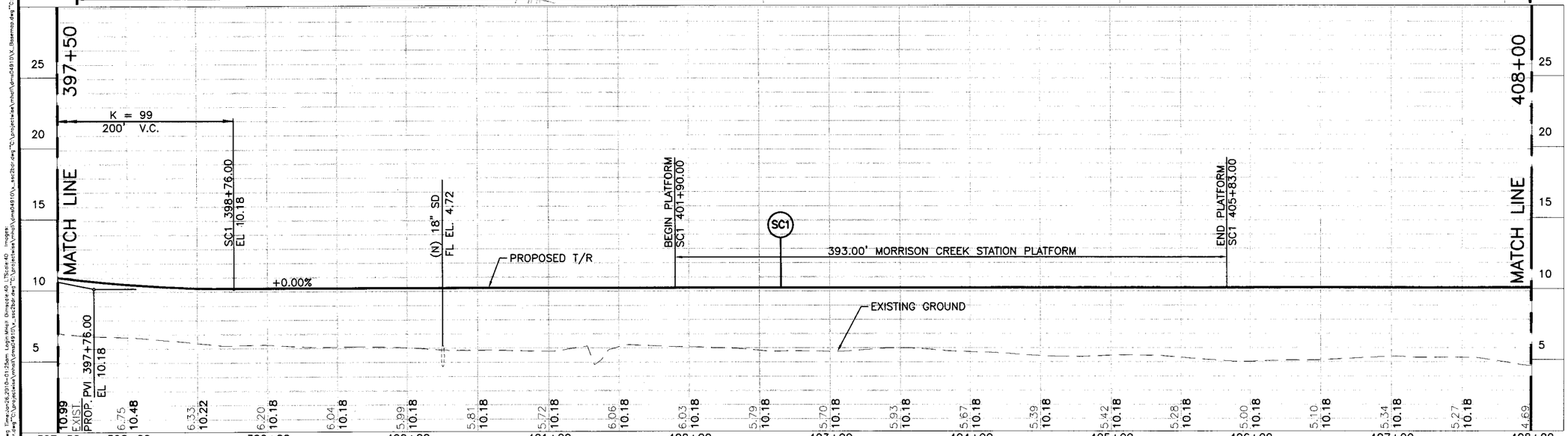
406+00

408

NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. SEE DWG. NO. GR-520 FOR MORRISON CREEK STATION ROUGH GRADING.
3. STATION DESIGN BY OTHERS.
4. SEE DWG. NO. TC-127 FOR LAYOUT AND DETAILS OF TPSS NO. 9.
5. SEE DWG. NO. TC-202 FOR BALLAST WALL DETAILS.
6. SEE DWG. NO. TC-207 FOR GRADE BEAM DETAILS.

	C104B		C204B
△	3°44'31.62"	△	3°44'31.62"
R	3350'	R	3300'
Ls	126.00'	Ls	129.00'
Lc	92.80'	Lc	86.53'
Ea	1.50"	Ea	1.50"
Eu	2.07"	Eu	2.13"
V	55 MPH	V	55 MPH



CU EXC	243
YDS EMB	2482

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

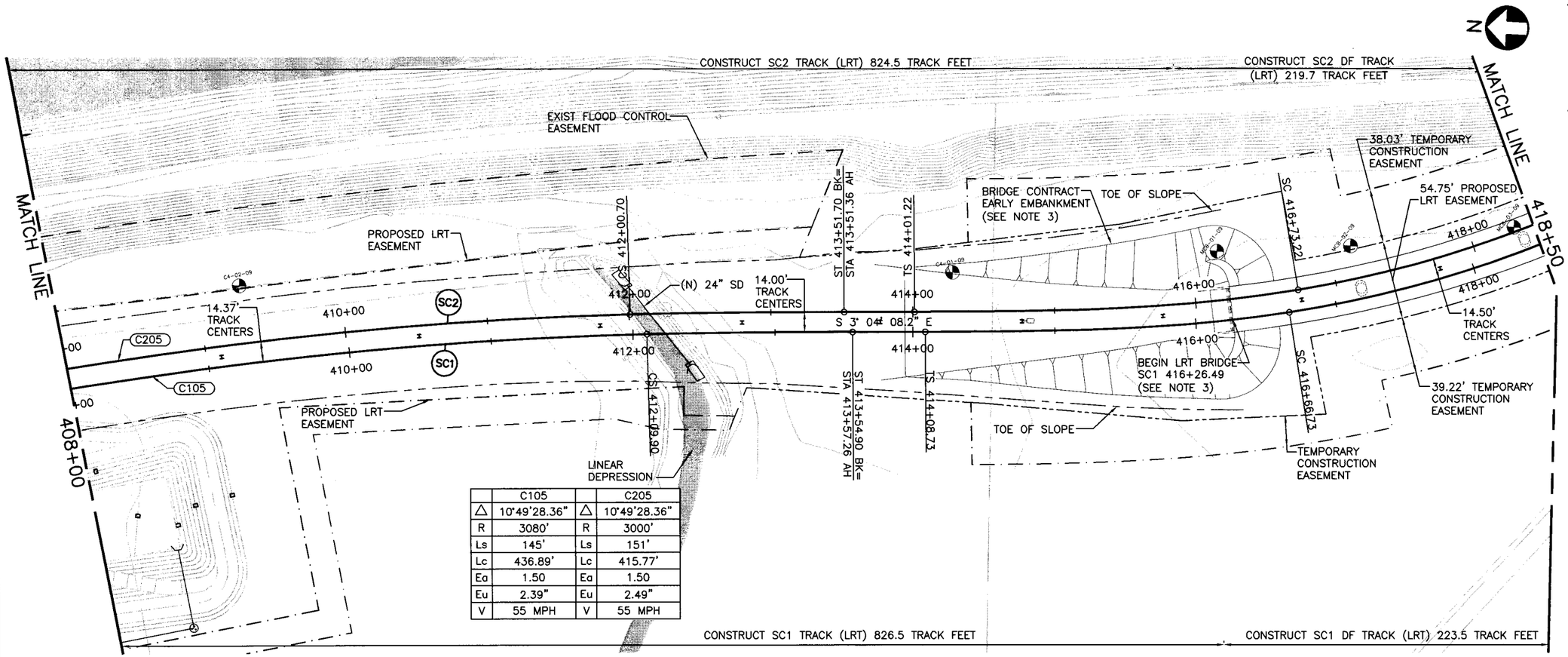
SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 397+50 TO 408+00

TC-107

SHEET 10

NOTES:
1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. SEE DWG. NO. TC-108P FOR TRACK PROFILE THIS AREA.
3. BRIDGE CONSTRUCTION WILL BE CONCURRENT WITH CIVIL AND TRACK CONSTRUCTION, INCLUDING PLACEMENT OF PORTION OF APPROACH EMBANKMENT FOR ABUTMENT CONSTRUCTION. CONTRACTOR REQUIRED TO COORDINATE AND WORK WITH OTHER CONTRACTORS WORKING IN AREA.
4. SEE DWG. NO. TC-208 FOR PLINTH DETAIL.



	C105		C205
△	10°49'28.36"	△	10°49'28.36"
R	3080'	R	3000'
Ls	145'	Ls	151'
Lc	436.89'	Lc	415.77'
Ea	1.50	Ea	1.50
Eu	2.39"	Eu	2.49"
V	55 MPH	V	55 MPH

CU EXC
YDS EMB

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

RICHARD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

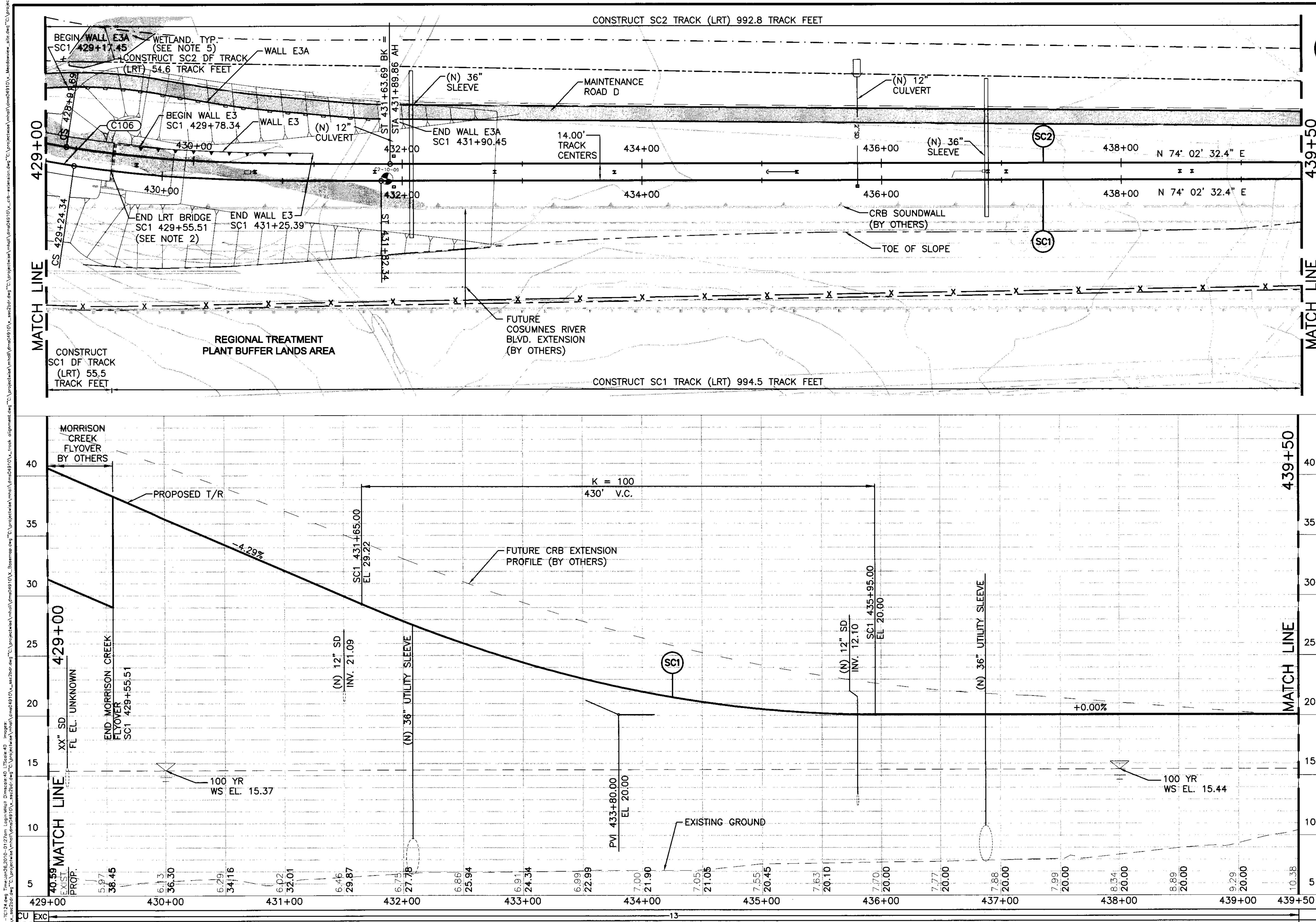
CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN
STA 408+00 TO 418+50

TC-108
SHEET 11


CONSTRUCT SC2 TRACK (LRT) 992.8 TRACK FEET
BEGIN WALL E3A
SC1 429+17.45
WETLAND, TYP.
(SEE NOTE 5)
CONSTRUCT SC2 DF TRACK
(LRT) 54.6 TRACK FEET
WALL E3A
(N) 36" SLEEVE
MAINTENANCE ROAD D
(N) 12" CULVERT
C106
BEGIN WALL E3
SC1 429+78.34
WALL E3
(N) 12" CULVERT
ST 431+63.69 BK
STA 431+89.86 AH
END WALL E3A
SC1 431+90.45
14.00' TRACK CENTERS
430+00
432+00
434+00
436+00
(N) 36" SLEEVE
SC2
438+00
N 74° 02' 32.4" E
429+00
439+50
CS 428+81.69
CS 429+24.34
ST 431+82.34
END LRT BRIDGE
SC1 429+55.51
(SEE NOTE 2)
END WALL E3
SC1 431+25.39
CRB SOUNDWALL
(BY OTHERS)
TOE OF SLOPE
SC1
MATCH LINE
FUTURE
COSUMNES RIVER
BLVD. EXTENSION
(BY OTHERS)
REGIONAL TREATMENT
PLANT BUFFER LANDS AREA
CONSTRUCT
SC1 DF TRACK
(LRT) 55.5
TRACK FEET
CONSTRUCT SC1 TRACK (LRT) 994.5 TRACK FEET
MORRISON CREEK FLYOVER BY OTHERS
PROPOSED T/R
K = 100
430' V.C.
-4.29%
SC1 431+65.00
EL 29.22
FUTURE CRB EXTENSION
PROFILE (BY OTHERS)
SC1 435+95.00
EL 20.00
(N) 36" UTILITY SLEEVE
(N) 12" SD
INV. 21.09
(N) 12" SD
INV. 12.10
+0.00%
XX" SD
FL EL. UNKNOWN
END MORRISON CREEK
FLYOVER
SC1 429+55.51
100 YR
WS EL. 15.37
100 YR
WS EL. 15.44
PVI 433+80.00
EL 20.00
EXISTING GROUND
EXIST.
PROP.
40.59
5.97
38.45
6.13
36.30
6.29
34.16
6.02
32.01
6.46
29.87
6.75
27.78
6.86
25.94
6.91
24.34
6.99
22.99
7.00
21.90
7.05
21.05
7.55
20.45
7.63
20.10
7.70
20.00
7.77
20.00
7.88
20.00
7.99
20.00
8.34
20.00
8.89
20.00
9.29
20.00
10.38
5
10
15
20
25
30
35
40
429+00
430+00
431+00
432+00
433+00
434+00
435+00
436+00
437+00
438+00
439+00
439+50
CU EXC
YDS EMB
13
55022

NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. BRIDGE CONSTRUCTION WILL BE CONCURRENT WITH CIVIL AND TRACK CONSTRUCTION, INCLUDING PLACEMENT OF PORTION OF APPROACH EMBANKMENT FOR ABUTMENT CONSTRUCTION. CONTRACTOR REQUIRED TO COORDINATE AND WORK WITH OTHER CONTRACTORS WORKING IN AREA.
3. SEE DWG. NO. R-046 THRU R-048 FOR LAYOUT OF MAINTENANCE ROAD D.
4. CENTRAL TRUNK IS SEVERELY CORRODED. EXTREME CAUTION SHOULD BE TAKEN WHEN WORKING AROUND ACTIVE LINE. NO HEAVY EQUIPMENT SHOULD BE DRIVEN OR PLACED ON THE SASD CENTRAL TRUNK ALIGNMENT PRIOR TO REHABILITATION. (REHABILITATION IS SCHEDULED FOR JUNE 2009 – OCTOBER 2010)
5. CONTRACTOR MUST DELINEATE AND PROTECT WETLAND AREAS PER SPECIFICATIONS.
6. SEE DWG. NO. TC-208 FOR PLINTH DETAIL.

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: C. LEMLEY
DESIGNED BY: D. BROWN
DRAWN BY: M. HALL
CHECKED BY: S. BROWN

DATE

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER
CHAD F. LEMLEY
No. 74375
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 429+00 TO 439+50

TC-110

SHEET 115

	C107		C207
△	15°01'19.71"	△	15°01'19.71"
R	1204'	R	1190'
Ls	176'	Ls	195'
Lc	139.67'	Lc	117'
Ea	3.75"	Ea	3.75"
Eu	1.51"	Eu	1.57"
V	40 MPH	V	40 MPH

CONSTRUCT SC2 TRACK (LRT) 1,046.3 TRACK FEET

CONSTRUCT SC1 TRACK (LRT) 1,050 TRACK FEET

439+50

450+00

MATCH LINE

MAINTENANCE ROAD D

INSTALL DOUBLE PIPE GATE

(N) 36" SLEEVE

14.00' TRACK CENTERS

SC2

SC1

C207

C107

(N) 12" SD

TOE OF SLOPE

FUTURE COSUMNES RIVER BLVD. EXTENSION (BY OTHERS)

REGIONAL TREATMENT PLANT BUFFER AREA

EX. PERIMETER BERM

(E) BASIN TO BE RECONFIGURED (SEE NOTE 2)

SC1 445+27.48, 39.22' LT BEGIN 4' CLF

PI SC1 445+27.48, 34.04' LT 4' CLF

15' ACCESS ROAD AND PEDESTRIAN PATH

SC1 448+90, 25.15' LT ℄ 6' GATE

4' CLF PVC

14.26' TRACK CENTERS

SIGNAL S940

SIGNAL S938

SC1 446+72.20, 11.00' RT BEGIN 4' CLF PVC

ST 449+76.55 AH

ST 449+80.21 BK

ST 449+70.75

TS 444+69.55

SC 446+84.55

CS 447+81.55

CS 447+94.75

TS 444+79.07

SC 446+55.07

NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. SEE DWG NO. DU-301 FOR DETAILS OF RELOCATED DETENTION BASIN.
3. CHAINLINK FENCE, USE CALTRANS STD PLAN DWG. A85.
4. SEE DWG. NO. R-046 THRU R-048 FOR LAYOUT OF MAINTENANCE ROAD D.

(N) 36" UTILITY SLEEVE

(N) 12" SD INV. 11.60

PROPOSED T/R +0.00%

FUTURE CRB EXTENSION PROFILE (BY OTHERS) EL = 20'±

100 YR WS EL. 15.47

EXISTING GROUND

EXISTING DETENTION BASIN BERM

100 YR WS EL. 15.54

EXISTING DETENTION BASIN

EXIST.																						
PROP.	20.00	10.34	9.89	9.56	9.08	8.85	8.85	8.79	9.10	9.11	9.86	10.38	10.81	11.24	11.15	10.79	11.53	15.80	17.12	7.38	1.99	1.96
	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	

439+50 440+00 441+00 442+00 443+00 444+00 445+00 446+00 447+00 448+00 449+00 450+00

CU YDS		
EXC	73	
EMB	24050	

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 439+50 TO 450+00

TC-111

SHEET 116

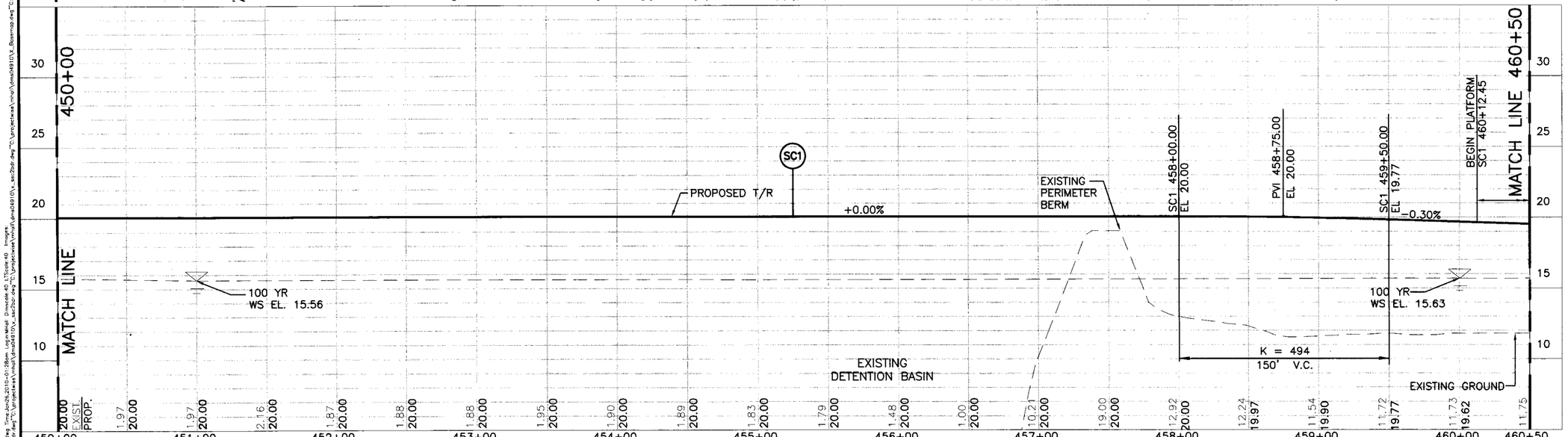
CONSTRUCT SC2 TRACK (LRT) 7.4 TRACK FEET
CONSTRUCT SC2 TURNOUT (LRT) 126.8 TRACK FEET
CONSTRUCT SC2 TRACK (LRT) 209.3 TRACK FEET
CONSTRUCT SC2 TURNOUT (LRT) 126.8 TRACK FEET
CONSTRUCT SC2 TRACK (LRT) 595.6 TRACK FEET

450+00
MATCH LINE
EX. DETENTION BASIN (TO BE RECONFIGURED)
15' ACCESS ROAD AND PEDESTRIAN PATH
14.00' TRACK CENTERS
15.41' TRACK CENTERS
INSTRUMENT HOUSE S245
N 59° 01' 12.7" E
SC1 450+18, 34' LT ℄ 12' DOUBLE SWING GATE
SWITCH 245B
SWITCH 250B
SWITCH 250A
NO. 10 CROSSOVER
SWITCH S245A
FRANKLIN STATION PARKING LOT (SEE STATION PLANS)
SC1 452+42, 11' RT ℄ 12' DOUBLE SWING GATE
SC1 454+66, 34' LT ℄ 12' DOUBLE SWING GATE
PI SC1 454+82.70, 11' RT 4' CLF PVC
PI SC1 458+41.28, 11' RT 4' CLF PVC
SC1 459+66.83, 11.32' RT END 4' CLF PVC
SIGNAL S959
SIGNAL S957
INSTALL RAIL BOOT AND SECURE TO RAIL. SEE DWG. NO. TC-217 FOR DETAILS
BEGIN GRADE BEAM STA. 460+12.45 4.67' RT
RS S959
MAINTENANCE ROAD E
INSTALL DOUBLE PIPE GATE
BEGIN GRADE BEAM STA. 460+03.20 23.00' LT
SC1 460+09.06, 24.5' LT END OF CLF TIE TO (N) STATION FENCE
MATCH LINE 460+50

	C108		C208
△	60°04'22.04"	△	60°04'22.04"
R	342'	R	356'
Ls	178'	Ls	150'
Lc	180.58'	Lc	223.25'
Ea	5.00"	Ea	5.00"
Eu	2.24"	Eu	1.95"
V	25 MPH	V	25 MPH

CONSTRUCT SC1 TRACK (LRT) 105 TRACK FEET
CONSTRUCT SC1 TURNOUT (LRT) 126.8 TRACK FEET
CONSTRUCT SC1 TRACK (LRT) 14 TRACK FEET
CONSTRUCT SC1 TURNOUT (LRT) 126.8 TRACK FEET
CONSTRUCT SC1 TRACK (LRT) 677.4 TRACK FEET

NOTES:
1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. SEE DWG. NO. C-620 THRU C-625 FOR LAYOUT OF FRANKLIN STATION PARKING LOT.
3. FRANKLIN STATION PLATFORM DESIGN BY OTHERS.
4. SEE DWG. NO. DU-301 FOR DETAILS OF RELOCATION DETENTION BASIN.
5. SEE DWG. NO. R-050 FOR LAYOUT OF MAINTENANCE ROAD E.
6. SEE DWG. NO. TC-207 FOR GRADE BEAM DETAILS.
7. SEE DWG. NO. TC-201 FOR TRACK FENCE DETAILS.
8. SEE DWG. NO. TC-211 FOR CROSSOVER DETAILS



CU YDS EXC 310
CU YDS EMB 24315

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: C. LEMLEY
DESIGNED BY: D. BROWN
DRAWN BY: M. HALL
CHECKED BY: S. BROWN
DATE

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

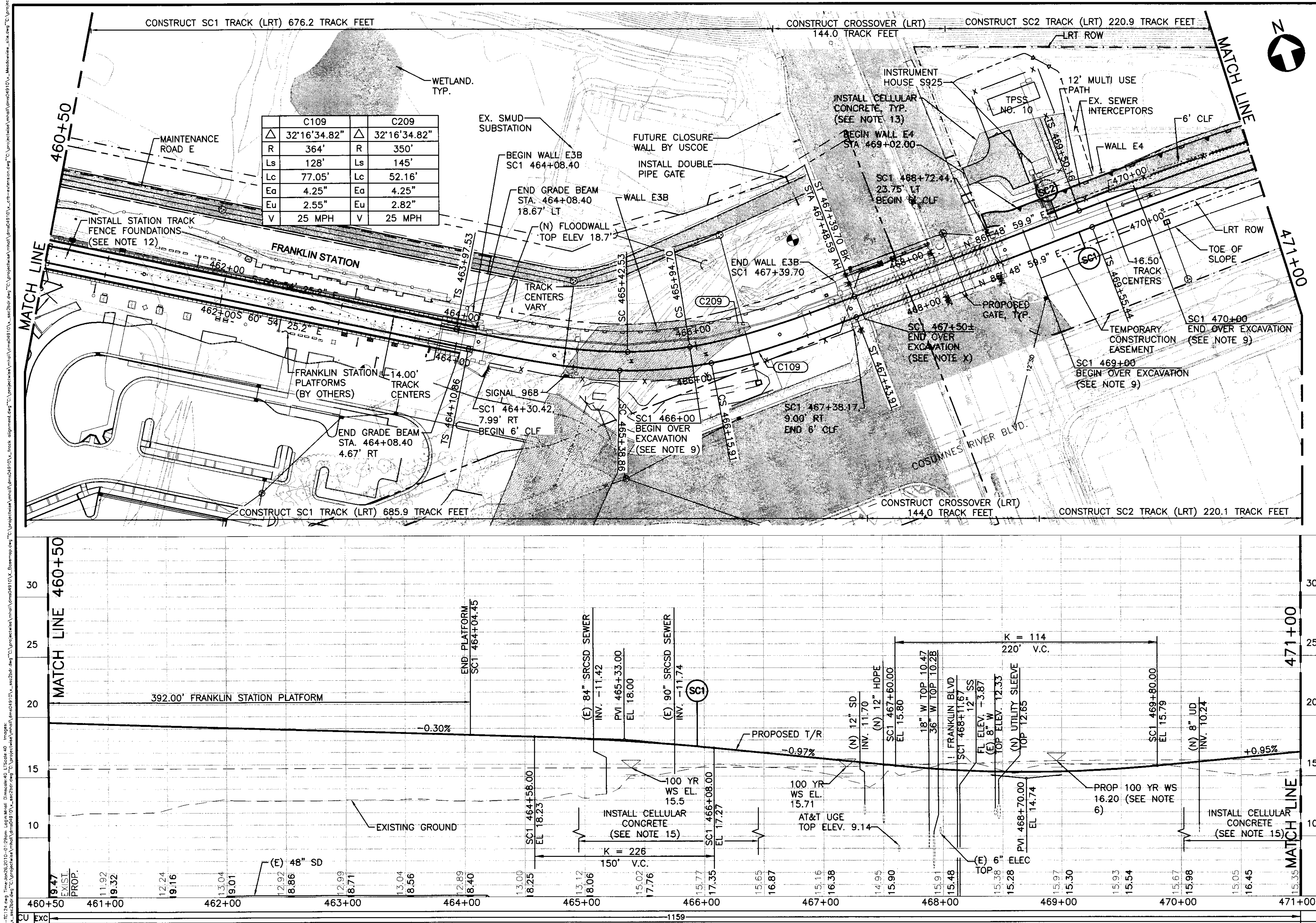
CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 450+00 TO 460+50

TC-112
SHEET 17



	C109		C209
△	32°16'34.82"	△	32°16'34.82"
R	364'	R	350'
Ls	128'	Ls	145'
Lc	77.05'	Lc	52.16'
Ea	4.25"	Ea	4.25"
Eu	2.55"	Eu	2.82"
V	25 MPH	V	25 MPH

NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. SEE DWG. NO. C-620 THRU C-625 FOR LAYOUT OF FRANKLIN STATION PARKING LOT.
3. FRANKLIN STATION PLATFORM BY OTHERS.
4. SEE DWG. NO. R-018 AND R-019 FOR DETAILS OF FRANKLIN BLVD. GRADE CROSSING.
5. SEE DU-SERIES DRAWINGS FOR UTILITY IMPROVEMENTS.
6. FROM USCOE FINAL 2009 HYDRAULIC REPORT ON UNION HOUSE CREEK.
7. SEE DWG. NO. TC-128 FOR LAYOUT AND DETAILS OF TPSS NO. 10.
8. SEE DWG. NO. R-049 AND R-050 FOR LAYOUT AND DETAILS OF MAINTENANCE ROAD E.
9. SEE SYSTEMS PLANS FOR LOCATION OF FLASHERS AND GRADE CROSSING INDICATORS.
10. SEE DWG. NO. R-023 THRU R-025 FOR FRANKLIN STATION ACCESS ROAD DETAILS.
11. SEE DWG. NO. TC-207 FOR GRADE BEAM DETAILS.
12. SEE DWG. NO. TC-201 FOR TRACK FENCE DETAILS.
13. SEE DWG. NO. TC-205 AND TC-206 FOR LIMITS AND DETAILS OF CELLULAR CONCRETE.
14. CONTRACTOR MUST PROTECT ALL EXISTING IN PLACE SRCSD FACILITIES.
15. SEE DWG. NOS. R-056 THRU R-08 FOR LAYOUT OF MULIT-USE PATH.

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: C. LEMLEY
DESIGNED BY: D. BROWN
DRAWN BY: M. HALL
CHECKED BY: S. BROWN

DATE

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

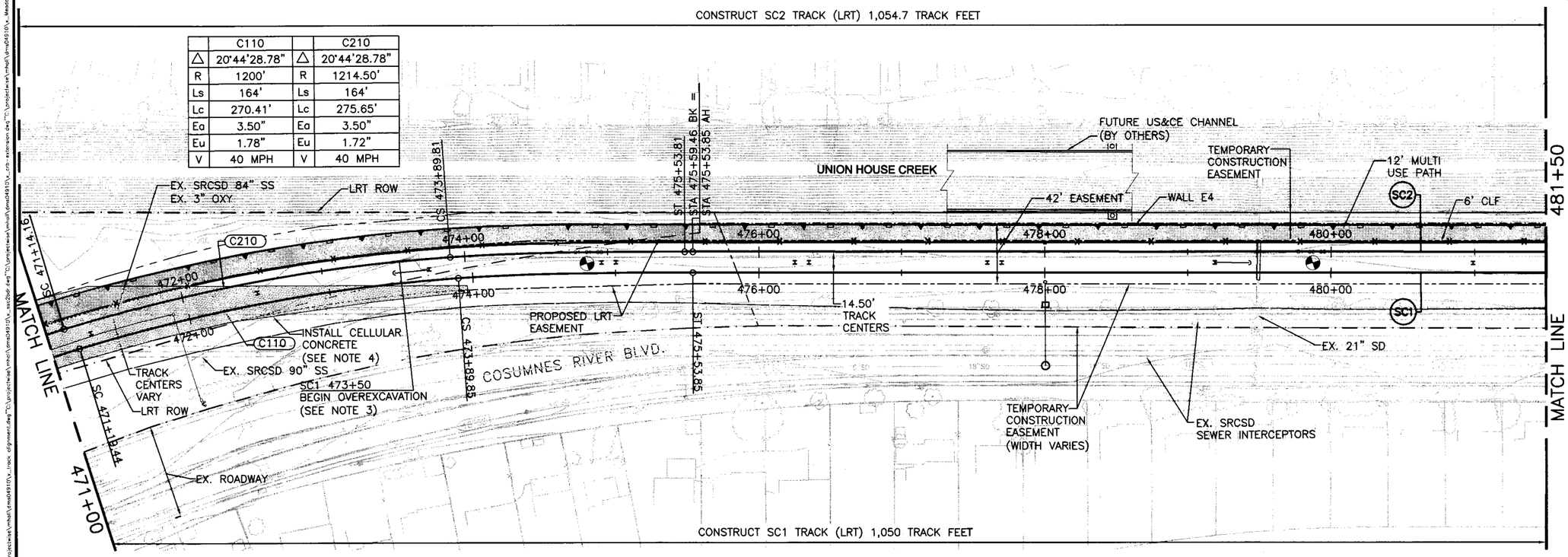
Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 460+50 TO 471+00

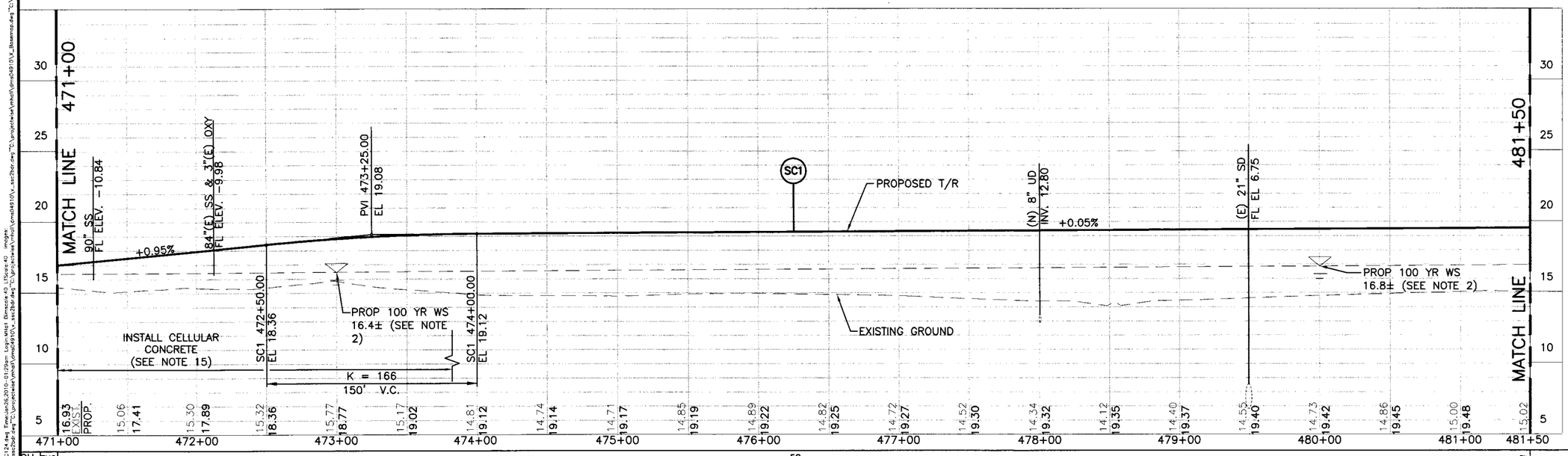
TC-113
SHEET 118

	C110		C210
△	20°44'28.78"	△	20°44'28.78"
R	1200'	R	1214.50'
Ls	164'	Ls	164'
Lc	270.41'	Lc	275.65'
Ea	3.50"	Ea	3.50"
Eu	1.78"	Eu	1.72"
V	40 MPH	V	40 MPH



NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. FROM USCOE FINAL 2009 HYDRAULIC REPORT ON UNION HOUSE CREEK.
3. OVER EXCAVATE TO 1' BELOW THE EX. GROUND ELEVATION AND SCARIFY AND RE-COMPACT PER SPECIFICATIONS.
4. SEE DWG. NO. TC-205 AND TC-206 FOR LIMITS AND DETAILS OF CELLULAR CONCRETE.
5. CONTRACTOR MUST PROTECT ALL EXISTING IN PLACE SRCSD FACILITIES.
6. SEE DWG. NOS. R-056 THRU R-08 FOR LAYOUT OF MULIT-USE PATH.



CU YDS	
EXC	52
EMB	4330

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER
RICHARD F. LEMLEY
No. 74375
Exp. 8/30/11
CIVIL
STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

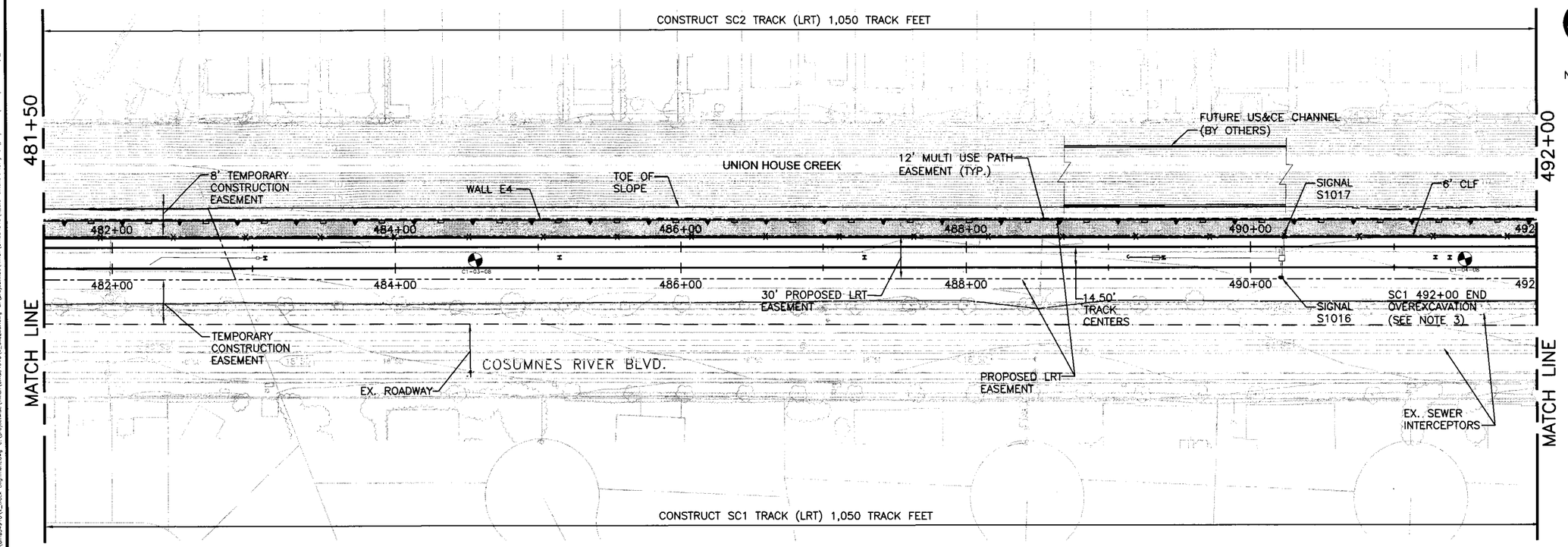
Regional Transit

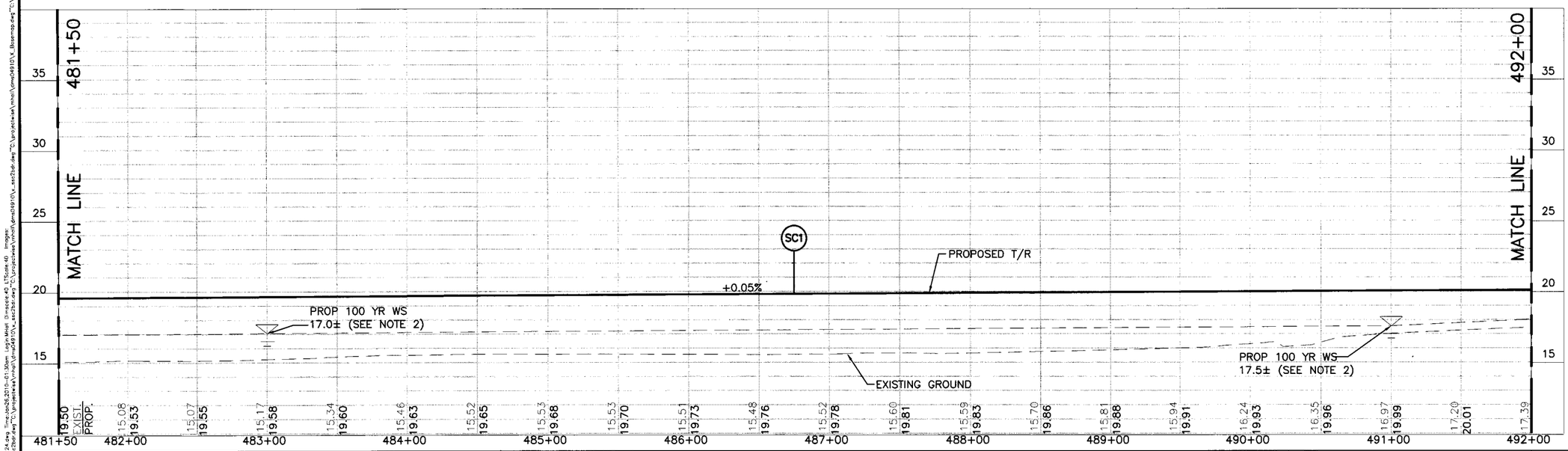
SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 471+00 TO 481+50

TC-114

SHEET 19





CU YDS	
EXC	5
EMB	3583

NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. FROM USCOE FINAL 2009 HYDRAULIC REPORT ON UNION HOUSE CREEK.
3. OVER EXCAVATE TO 1' BELOW THE EX. GROUND ELEVATION AND SCARIFY AND RE-COMPACT PER SPECIFICATIONS.
4. SEE DWG. NOS. R-056 THRU R-08 FOR LAYOUT OF MULIT-USE PATH.

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

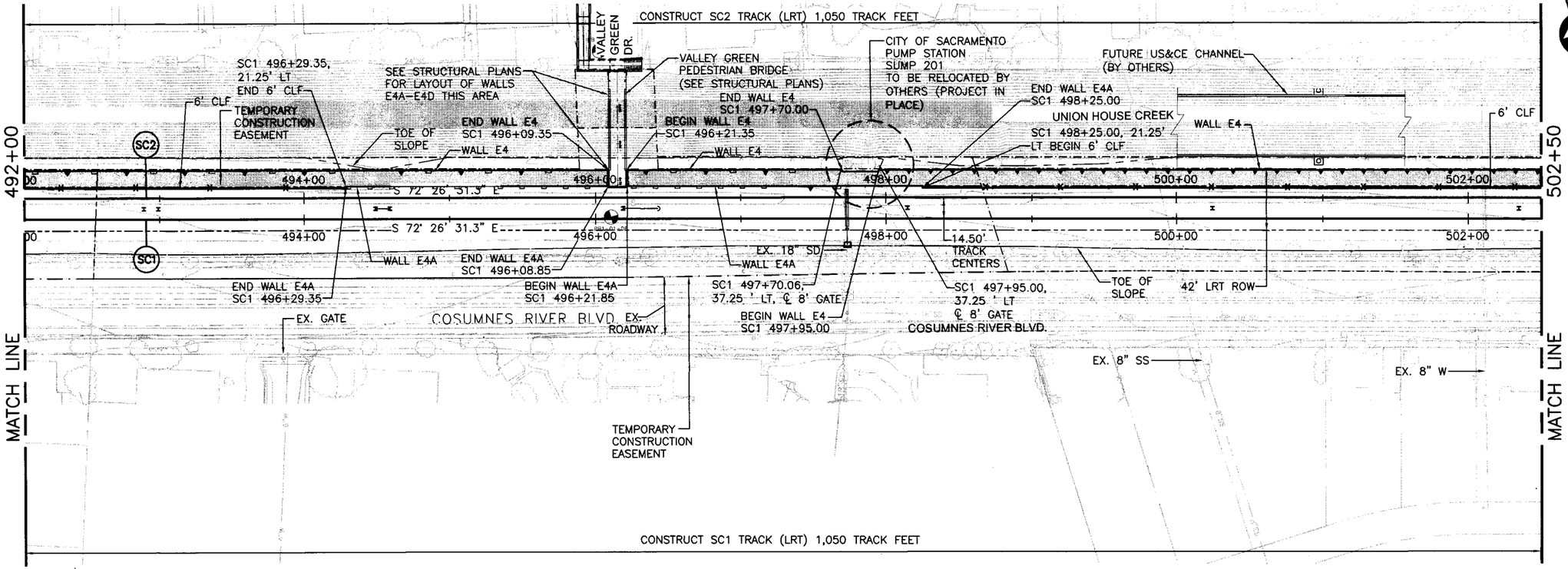
CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

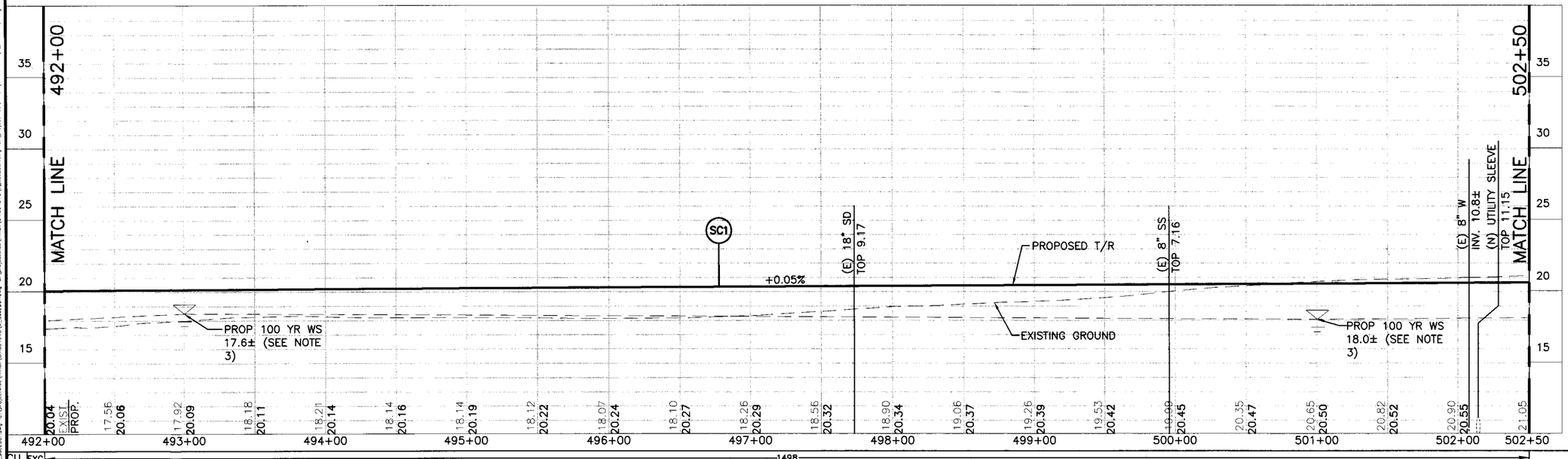
Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 481+50 TO 492+00

TC-115
SHEET 12





NOTES:
1. SEE DWG. NO. TC–101 FOR ADDITIONAL NOTES.
2. SEE VALLEY GREEN DRIVE PEDESTRIAN BRIDGE PLANS FOR LIMITS OF BRIDGE WORK.
3. FROM USCOE FINAL 2009 HYDRAULIC REPORT ON UNION HOUSE CREEK.
4. SEE DWG. NOS. R–056 THRU R–08 FOR LAYOUT OF MULIT–USE PATH.

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD E. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

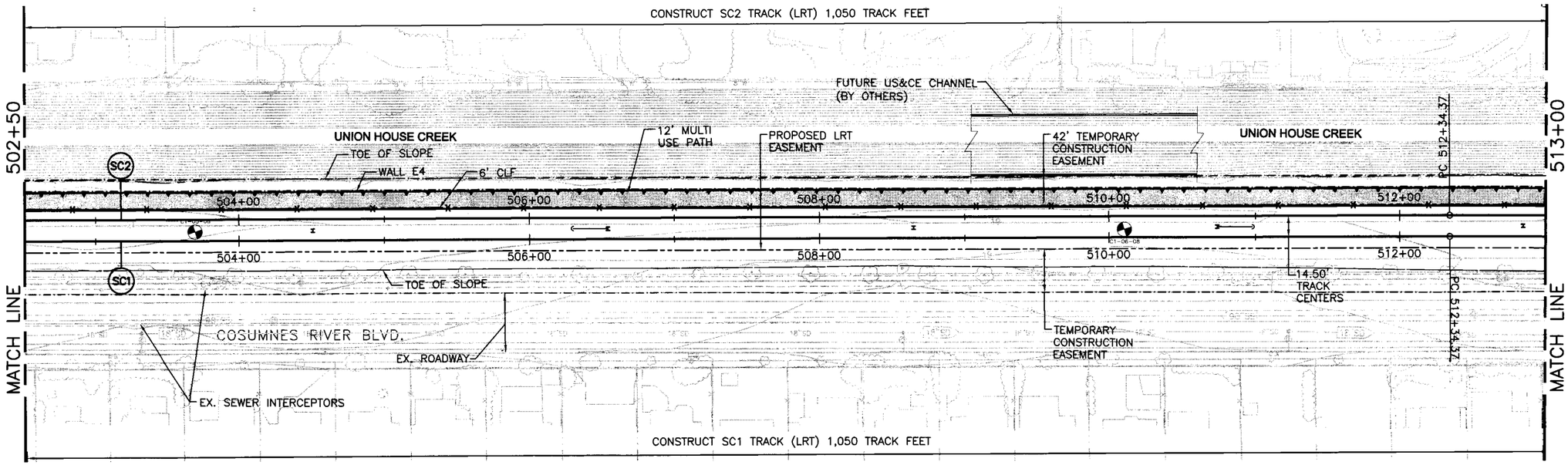
CI: XXXXXXXXXX
FILE: TC037–TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

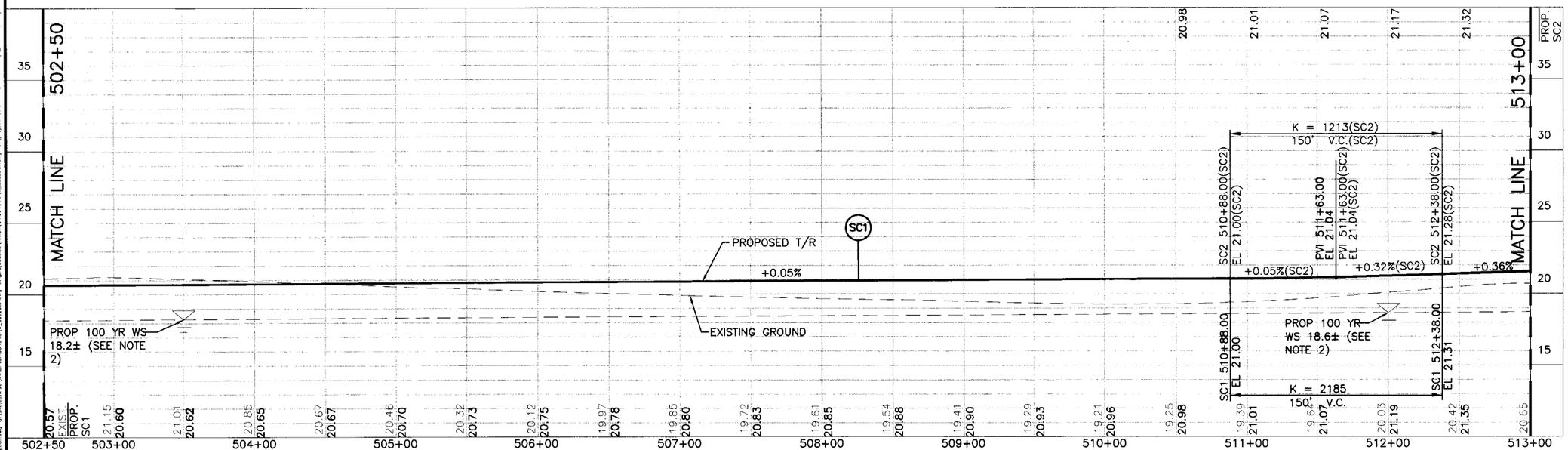
TRACK PLAN AND PROFILE
STA 492+00 TO 502+50

TC-116
SHEET 12



NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. FROM USCOE FINAL 2009 HYDRAULIC REPORT.
3. SEE DWG. NOS. R-056 THRU R-08 FOR LAYOUT OF MULIT-USE PATH.



REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
1				
2				
3				
4				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHARLES F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

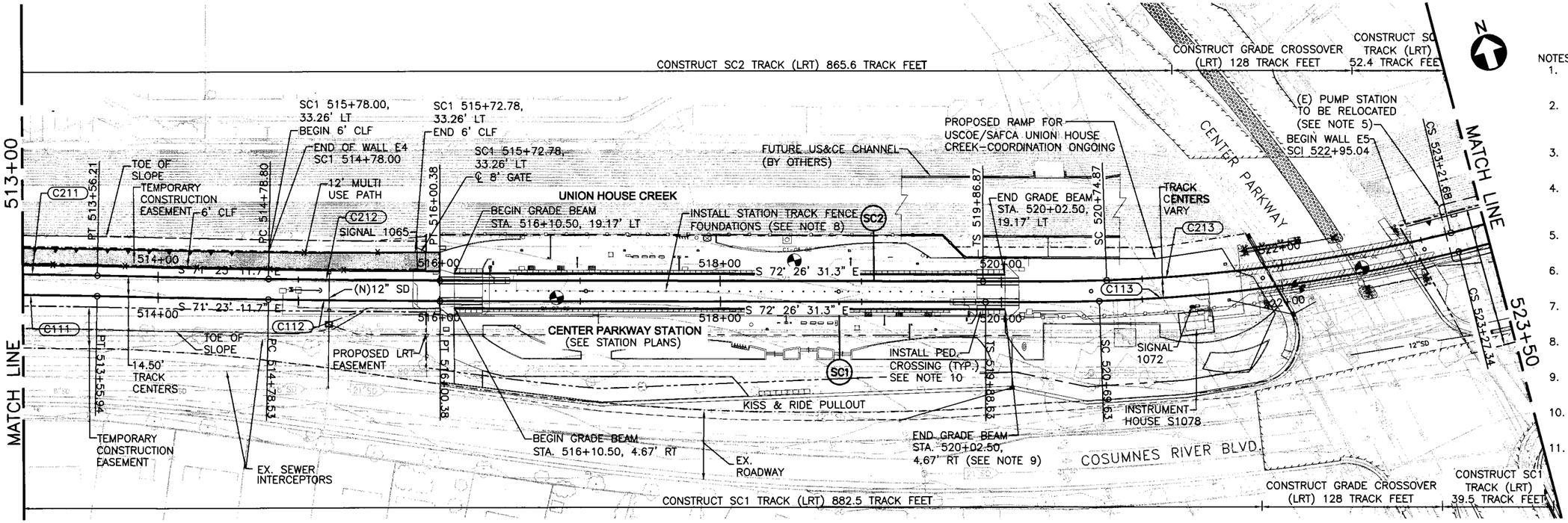
CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

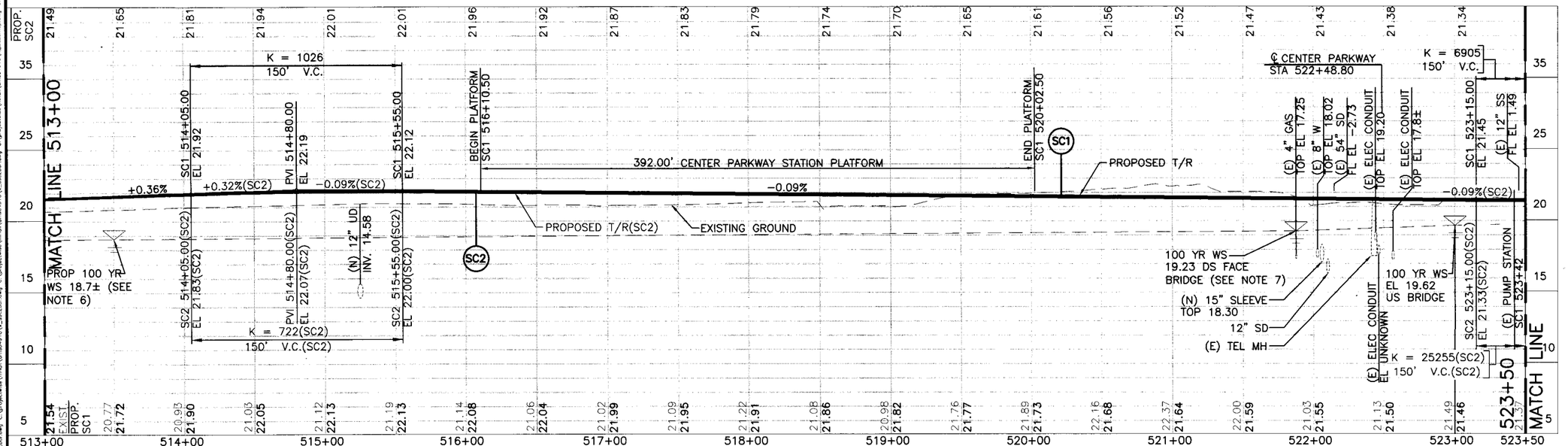
TRACK PLAN AND PROFILE
STA 502+50 TO 513+00

TC-117
SHEET 12



NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. SEE DWG. NO. R-029 FOR LOCATION AND DETAILS OF CENTER PARKWAY STATION PULLOUT.
3. CENTER PARKWAY STATION PLATFORM BY OTHERS.
4. SEE DWG. NO. R-026 THRU R-030 FOR DETAILS OF CENTER PARKING GRADE CROSSING.
5. SEE DWG. NO DU-401 FOR PUMP STATION REMOVAL AND RELOCATION.
6. FROM USCOE FINAL 2009 HYDRAULIC REPORT ON UNION HOUSE CREEK.
7. SEE DWG. NO. R-029 FOR CENTER PARKWAY BUS PULL OUT LAYOUT.
8. SEE DWG. NO. TC-201 FOR TRACK WAY FENCE DETAILS.
9. SEE DWG. NO. TC-207 FOR GRADE BEAM DETAILS.
10. SEE DWG. NO. TC-203 FOR PEDESTRIAN CROSSING .
11. CONTRACTOR MUST PROTECT IN PLACE ALL ALL SRCSD AND SASD FACILITIES.



	C111		C211
△	1°03'19.50"	△	1°03'19.50"
R	6600'	R	6614.50'
Lc	121.58'	Lc	121.84'
Ea	0.75"	Ea	0.75"
Eu	1.06"	Eu	1.06"
V	55 MPH	V	55 MPH

	C112		C212
△	1°03'19.54"	△	1°03'19.54"
R	6614.50'	R	6600'
Lc	121.84'	Lc	121.58'
Ea	0.75"	Ea	0.75"
Eu	1.06"	Eu	1.06"
V	55 MPH	V	55 MPH

	C113		C213
△	15°59'09.40"	△	15°59'09.40"
R	1214'	R	1200'
Ls	81'	Ls	88'
Lc	257.72'	Lc	246.81'
Ea	0.50"	Ea	0.50"
Eu	2.44"	Eu	2.47"
V	30 MPH	V	30 MPH

REVISIONS

MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER RICHARD T. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

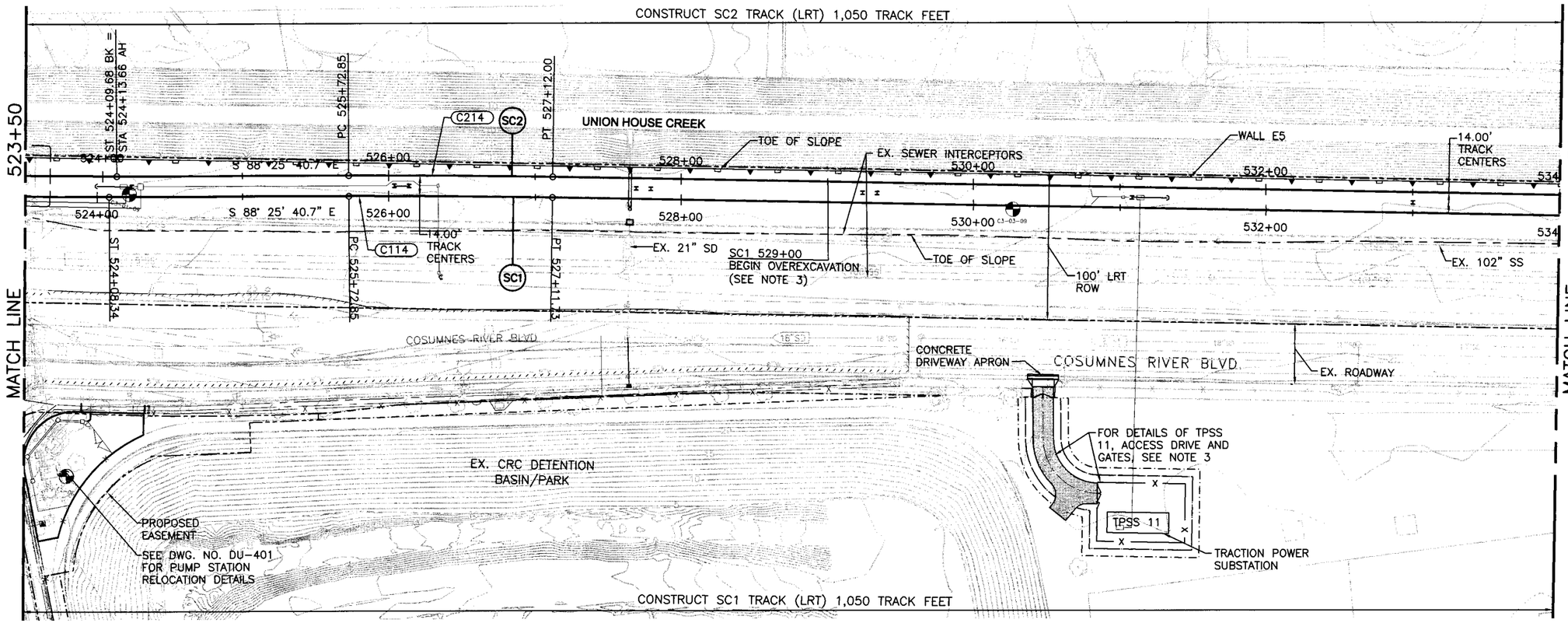
CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

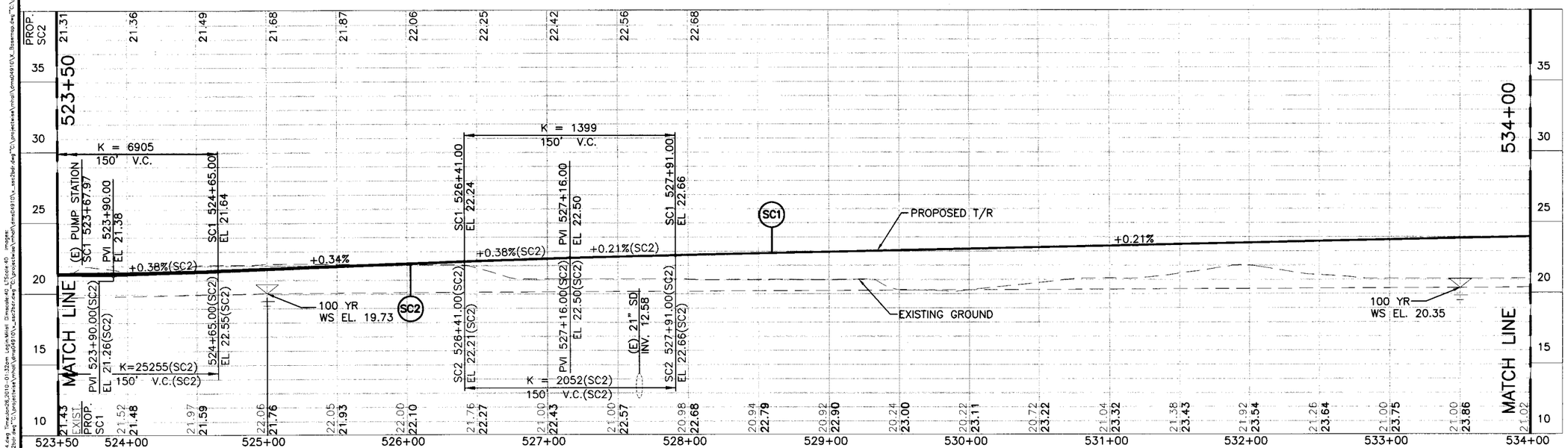
Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 513+00 TO 523+50

TC-118
SHEET 123





NOTES:

1. SEE DWG. NO. TC-101 FOR ADDITIONAL NOTES.
2. FROM USCOE FINAL 2009 HYDRAULIC REPORT ON UNION HOUSE CREEK.
3. SEE DWG. NO. TC-129 FOR LAYOUT AND DETAILS OF TPSS NO. 11.
4. OVER EXCAVATE TO 1' BELOW THE EX. GROUND ELEVATION AND SCARIFY AND RE-COMPACT PER SPECIFICATIONS.
5. CONTACT LRCCD FOR FENCE RELOACTIONS ON CRC, PER SPECIFICATIONS.
6. CONTRACTOR MUST PROTECT IN PLACE ALL SRCSD AND SASD FACILITIES.

	C114		C214
△	1°05'59"	△	1°05'59"
R	7236'	R	7250'
Lc	138.88'	Lc	139.15'
Ea	0.50"	Ea	0.50"
Eu	1.16"	Eu	1.15"
V	55 MPH	V	55 MPH

REVISIONS

MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	C. LEMLEY	
DESIGNED BY:	D. BROWN	
DRAWN BY:	M. HALL	
CHECKED BY:	S. BROWN	

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 523+50 TO 534+00

TC-119
SHEET 124

CONSTRUCT SC2 TRACK (LRT) 945.7 TRACK FEET

CONSTRUCT SC2 DF (LRT) 102.7 TRACK FEET

534+00

544+50

SC2

SC1

UNION HOUSE CREEK

TOE OF SLOPE

WALL E5

SIGNAL S1117

END WALL E5 SC1 543+37.72

536+00

S 87° 19' 41.8" E

538+00

540+00

542+00

544+00

TOE OF SLOPE

14.00' TRACK CENTERS

EX. 102" SS

100' LRT ROW

SIGNAL S1116

SC1 543+45.72 END OVEREXCAVATION (SEE NOTE 3)

BEGIN STRUCTURE SC1 543+45.72

MATCH LINE

COSUMNES RIVER BLVD

EX. COSUMNES RIVER BLVD.

COSUMNES RIVER COLLEGE

CONSTRUCT SC1 DF (LRT) 104.3 TRACK FEET

CONSTRUCT SC1 TRACK (LRT) 945.7 TRACK FEET

N

NOTES:

1. SEE DWG. NO. TC-037 FOR ADDITIONAL NOTES.
2. FROM USCOE FINAL 2009 HYDRAULIC REPORT ON UNION HOUSE CREEK.
3. OVER EXCAVATE TO 1' BELOW THE EX. GROUND ELEVATION AND SCARIFY AND RE-COMPACT PER SPECIFICATIONS.
4. SEE DWG. NO. TC-208 FOR PLINTH DETAILS.

CRB APPROACH STRUCTURE AND MSE WALL BY OTHERS

K = 42
200' V.C.

SC1 542+08.00
EL 25.70

SC1 544+08.00
EL 30.90
+4.99%

PROPOSED T/R

+0.21%

(N) 12" SD
INV. 16.98

100 YR
WS EL. 20.46

EXISTING GROUND

100 YR
WS EL. 21.04

PVI 543+08.00
EL 25.91

APPROACH SLOPE FOR CRB

543+45.72

	534+00	535+00	536+00	537+00	538+00	539+00	540+00	541+00	542+00	543+00	544+00	544+50
EXIST.	23.97	21.42	21.84	21.96	22.04	22.01	22.11	22.09	22.10	22.44	22.94	23.16	23.04	23.01	23.02	23.07	23.11	23.23	23.01
PROP.		24.07	24.18	24.29	24.39	24.50	24.61	24.72	24.82	24.93	25.04	25.14	25.25	25.36	25.46	25.57	25.68	26.00	26.90	30.51		

CU YDS	EXC	168
	EMB	263

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'

ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: C. LEMLEY
DESIGNED BY: D. BROWN
DRAWN BY: M. HALL
CHECKED BY: S. BROWN

DATE

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER
CHAD F. LEMLEY
No. 74375
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: TC037-TC062.DWG
SUBMITTAL: 01/26/10

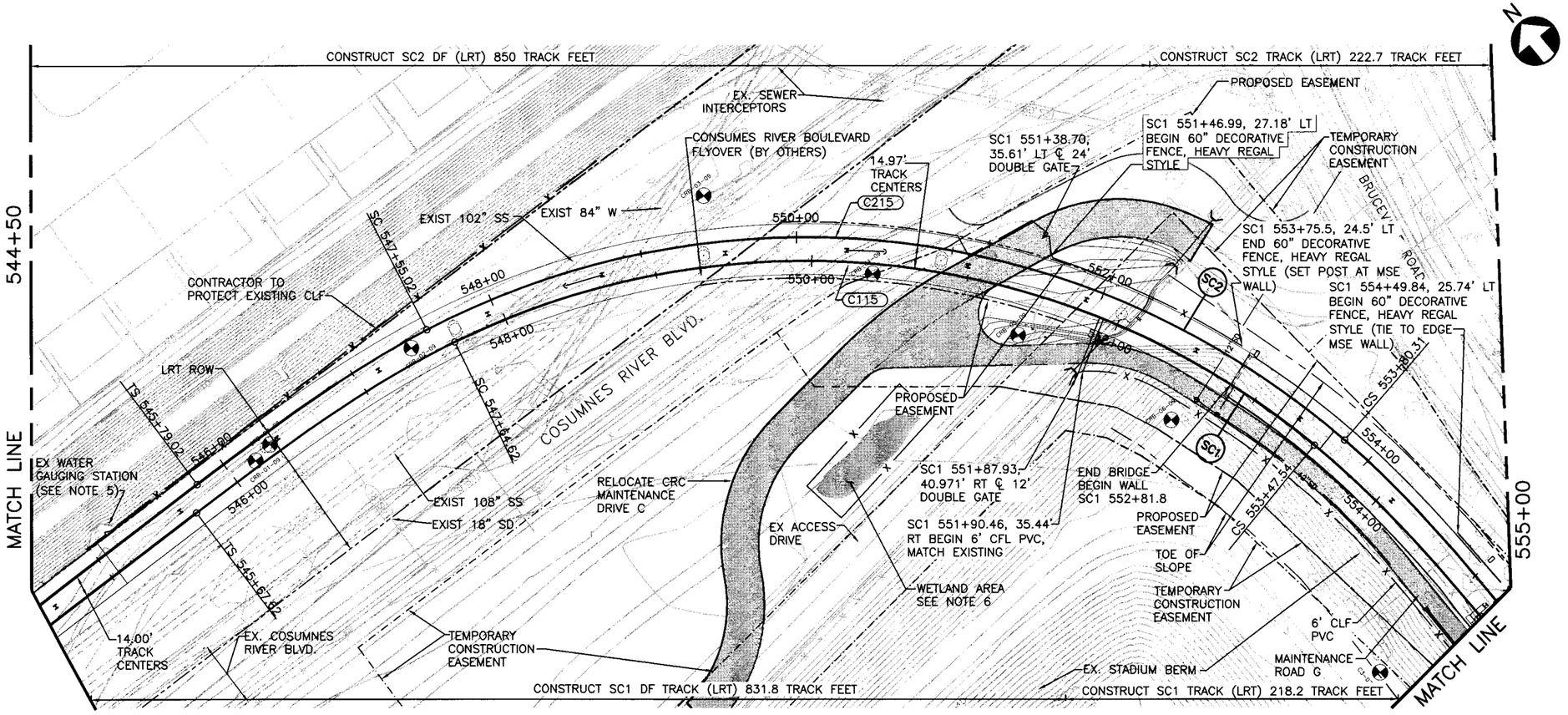
Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN AND PROFILE
STA 534+00 TO 544+50

TC-120

SHEET 125



NOTES:

1. SEE DWG. NO. TC–101 FOR ADDITIONAL NOTES.
2. CRB FLYOVER BY OTHERS
3. CRB APPROACH WALL CONSTRUCTED BY OTHER RT CONTRACT.
4. SEE DWG. NO. R–028 FOR LIMITS OF MAINTENANCE DRIVE C RELOCATION.
5. EXIST. WATER GAUGING STATION TO REMAIN, PROTECT IN PLACE.
6. CONTRACTOR MUST DILNEATE AND PROTECT WETLAND AREA, PER SPECIFICATIONS.
7. SEE DWG. NO. R–052 AND R–053 FOR LAYOUT AND DESIGN OF MAINTENANCE ROAD G.
8. SEE DWG. NO. TC–208 FOR PLINTH DETAIL.

	C115		C215
△	87°26'54.6"	△	87°26'54.6"
R	511'	R	525'
Ls	197'	Ls	176'
Lc	582.92'	Lc	625.29'
Ea	5.00"	Ea	5.00"
Eu	1.97"	Eu	1.79"
	30 MPH	V	30 MPH

CU YDS | EXC EMB

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=4'
HORIZONTAL: 1"=40'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: C. LEMLEY
DESIGNED BY: D. BROWN
DRAWN BY: M. HALL
CHECKED BY: S. BROWN
DATE

Lockwood, Andrews & Newnam, Inc. A LEO A DALY COMPANY

REGISTERED PROFESSIONAL ENGINEER CHAD F. LEMLEY No. 74375 Exp. 6/30/11 CIVIL STATE OF CALIFORNIA

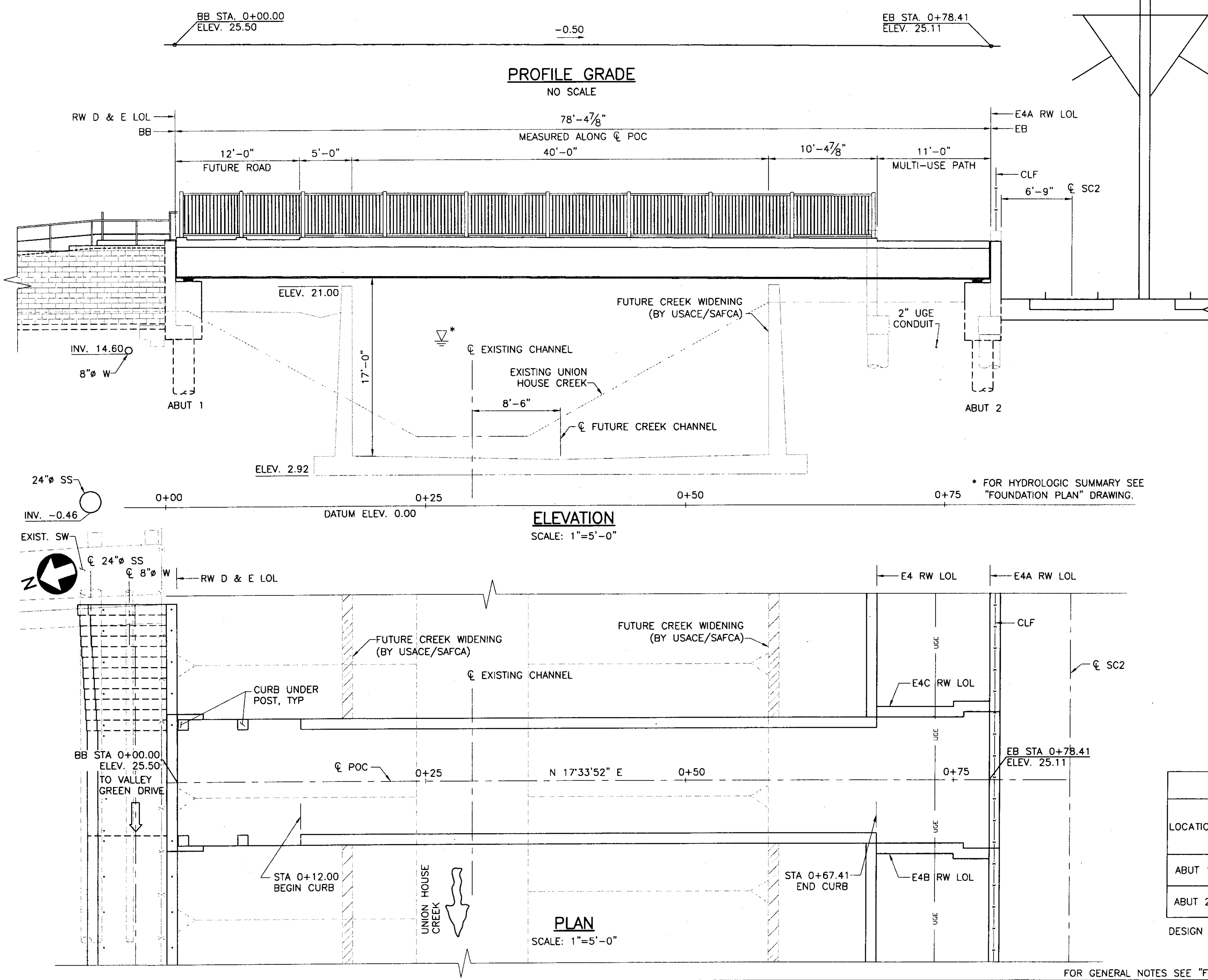
CI: XXXXXXXXXX
FILE: TC037–TC062.DWG
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT

TRACK PLAN
STA 544+50 TO STA 555+00

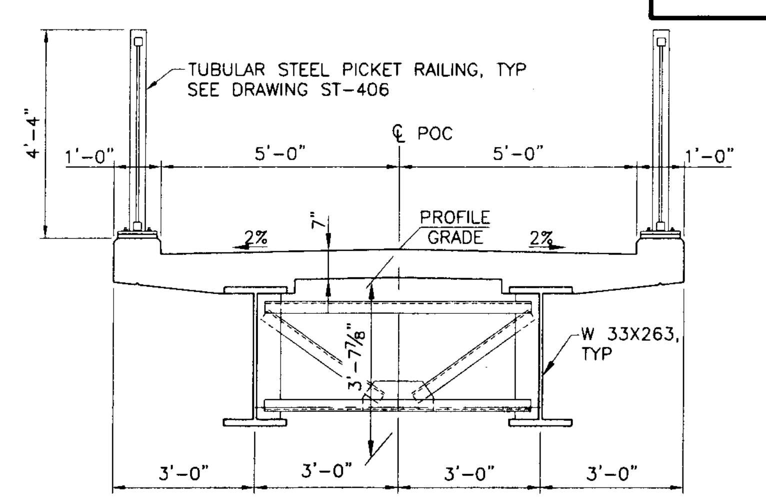
TC-121
SHEET 126



PROFILE GRADE
NO SCALE

ELEVATION
SCALE: 1"=5'-0"

PLAN
SCALE: 1"=5'-0"



TYPICAL SECTION
SCALE: ½"=1'-0"

INDEX TO BRIDGE PLANS

SHEET NO.	TITLE
ST-401	GENERAL PLAN
ST-402	FOUNDATION PLAN
ST-403	ABUTMENT LAYOUT
ST-404	ABUTMENT DETAILS
ST-405	TYPICAL SECTIONS
ST-406	SLAB REINFORCEMENT
ST-407	CROSS BRACING DETAILS
ST-408	ACCESS ROAD RETAINING WALL
ST-409	RAMP DETAIL 1
ST-410	RAMP DETAIL 2

CALTRANS STANDARD PLANS DATED MAY 2006

A10A & A10B	ACRONYMS AND ABBREVIATIONS
A10C & A10D	SYMBOLS
A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL-BRIDGE
B0-1	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
B0-13	BRIDGE DETAILS

CALTRANS — STANDARD PLAN SHEET NO. / DETAIL NO.

LEGEND

∇ INDICATES 100 YEAR HIGH WATER SURFACE ELEVATION = 15.70

------ INDICATES EXISTING STRUCTURE

NOTES:

1. FOR GENERAL NOTES, SEE "FOUNDATION PLAN" DRAWING.
2. FOR PEDESTRIAN RAMP LAYOUT, SEE "RAMP DETAIL 1" DRAWING.
3. FOR WALL 34B & 3BC DETAIL, SEE "ST-408".

PILE DATA TABLE

LOCATION	PILE TYPE	DESIGN LOADING (SERVICE LOAD) (KIPS)	NOMINAL RESISTANCE (KIPS)		DESIGN TIP ELEVATIONS (FT)	SPECIFIED TIP ELEVATION (FT)
			COMPRESSION	TENSION		
ABUT 1	24"ø CIDH	60	120	0	-19.00 (A) -12.00 (B)	-19.00
ABUT 2	24"ø CIDH	60	120	0	-19.00 (A) -12.00 (B)	-19.00

DESIGN TIP ELEVATIONS ARE CONTROLLED BY (A) COMPRESSION (B) LATERAL LOAD

FOR GENERAL NOTES SEE "FOUNDATION PLAN" SHEET

CONTRACTOR TO VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE BUYING OR FABRICATING ANY MATERIALS

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: AS SHOWN
HORIZONTAL: AS SHOWN
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

		DATE
PROJECT ENGINEER:	M. KANAAN	
DESIGNED BY:	S. FU	01/10
DRAWN BY:	M. KENDALL	01/10
CHECKED BY:	A. MALLA	01/10

ADKO Engineering
400 Plaza Dr. Suite 125
Folsom, CA 95630
Phone (916) 294-0059
Fax (916) 294-0875
www.adkoengineering.com

REGISTERED PROFESSIONAL ENGINEER
Majid M. Kanaan
No. C050238
EXP. 06/30/11
CIVIL
STATE OF CALIFORNIA

CI: XXXXXXXXXX
FILE: SSCP2ST401
SUBMITTAL: 01/26/10

Regional Transit

SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT
STRUCTURAL ENGINEERING

VALLEY GREEN DRIVE PEDESTRIAN BRIDGE
GENERAL PLAN

ST-401
SHEET 375

Attachment F

Hydraulic Analysis

PRINCIPALS
CATHERINE M.C. AVILA, P.E.
ERNESTO A. AVILA, P.E.

AVILA AND ASSOCIATES
CONSULTING ENGINEERS, INC.
712 BANCROFT ROAD, SUITE NO. 333
WALNUT CREEK, CALIFORNIA 94598

TELEPHONE
(925) 673-0549
FACSIMILE
(925) 673-0509

February 27, 2012

Jenny Niello, P.E.
Senior Civil Engineer
Sacramento Regional Transit District
2811 O Street
Sacramento, CA 95816

RE: Sacramento Regional Transit District – 2010 GESS
Work Order #10 – SSPII Final Hydraulics Report

Subject: Revised Supplemental Hydraulic Analysis for the Regional Transit and Cosumnes River Boulevard Infrastructure over Morrison and Unionhouse Creeks in Sacramento, CA.

Dear Ms. Niello:

Avila and Associates Consulting Engineers, Inc. (Avila and Associates) has completed its analysis of additional hydraulic scenarios as requested by the Central Valley Flood Protection Board (CVFPB) at meetings held on June 2, 2011, July 30, 2011, November 4, 2011, and through the CVFPB comments received June 16, 2011, January 30, 2012 and February 20, 2012 in order to obtain a permit from the CVFPB.

Attached is our revised supplemental report that analyzes the potential impact of the proposed Sacramento Regional Transit District (RT) project including construction of the RT/Cosumnes River Boulevard (CRB) embankment, relocation of the detention pond, and construction of the pedestrian bridges on Unionhouse Creek and CRB and RT bridges on Morrison Creek.

For the CVFPB, our analysis shows that the RT/CRB improvements in the reach cause a maximum calculated water surface increase of 0.04-ft or approximately 0.5 inches. This increase is not considered significant since it is below 0.1-ft. Between the UPRR and the Valley Green Pedestrian Bridge, the velocity ranges from 0.3 to 4.9 feet per second. The maximum change in velocity is 0.6 feet per second which is not considered significant since it is below 1 ft/second.

The bridge provides a minimum of 4.2 feet of freeboard above the 100-year design discharge and has a potential local pier scour depth of 3-ft. The Valley Green Pedestrian Bridge located at station 7727 provides a minimum of 4.3 feet of freeboard above the 100-year design discharge and is a 1-span bridge which has no piers and thus no local pier scour.

Should you have any questions, please feel free to contact me at (925) 673-0549 or e-mail at cavila@avilaassociates.com.

Very truly yours,
Avila and Associates Consulting Engineers, Inc.

Catherine M.C. Avila, P. E.
Principal

Attachments: Supplemental Report and HEC-RAS Model

Revised Supplemental Hydraulic Analysis for the Regional Transit and Cosumnes River Boulevard Infrastructure over Morrison and Unionhouse Creeks in Sacramento, CA

Introduction and Approach to Analysis

This supplemental report updates the reports we provided on June 29, 2011, September 6, 2011 and November 15, 2011 and presents the results of our analyses of Unionhouse Creek including revisions to the Unionhouse Creek HEC-RAS model as described below. The Unionhouse Creek HEC-RAS model stations are shown in plan view on Figures 1 and 2.

CVFPB Existing Conditions (Red). The USACOE model was updated based on the comments from Dr. Saad Merayyan and subsequent discussions including:

1. **Morrison Creek Levees**: We have revised the levee elevation to be the top of the levee for the Morrison Creek reach within 300-ft upstream and downstream of the junction with Unionhouse Creek.

2. **Unionhouse Creek Levees**: We have revised the levee elevation on the north levee of Unionhouse Creek between the UPRR to approximately 250-ft upstream of the Valley Green Pedestrian Bridge to be either the top of the flood wall (between UPRR and Franklin Blvd) or the top of the levee (between Franklin and Valley Green).

3. **Manning's "n" for RSP between Station 1255 and Franklin Blvd:** We have revised the manning's "n" value for the RSP from 0.02 to 0.035 between station 1255 and Franklin Blvd.

4. **Ineffective Flow Areas in the south overbank between UPRR and Franklin Blvd:** At your request, we have included the ineffective flow areas between the UPRR and Franklin Blvd.

As described in previous submittals, the hydraulic parameters (water surface elevations and velocity) were taken from the HEC-RAS (Hydraulic Engineering Center River Analysis System) version 4.1 model utilizing the HEC-RAS models obtained from the USACE on May 19, 2009. The "Morrison Creek" model was linked with the "Unionhouse Creek" model with a junction at the confluence of the two streams. At the request of Dr. Saad Merayyan, only the 100-year discharge results are included in this report. Results for other recurrence intervals are available in the HEC-RAS file which is forwarded as part of the report.

Summary of Findings

Construction of all of the Sacramento Regional Transit District (RT) / Cosumnes River Boulevard (CRB) improvements in the reach including construction of the RT/CRB embankment, relocation of the detention pond and construction of the pedestrian and Morrison Creek Bridges causes a calculated water surface increase of 0.04-ft or approximately 0.5-inches.

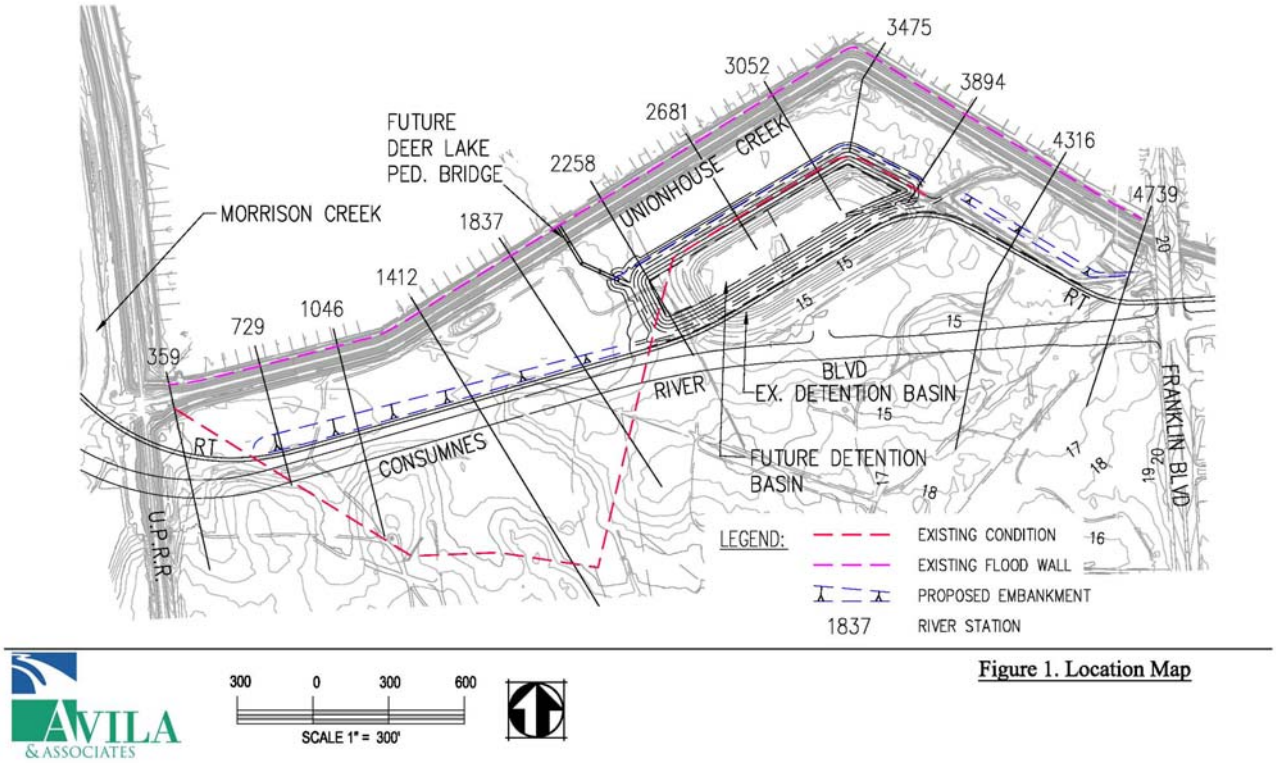


Figure 1. Location Map

Figure 1: Plan view of HEC-RAS Cross sections for UPRR to Franklin Blvd

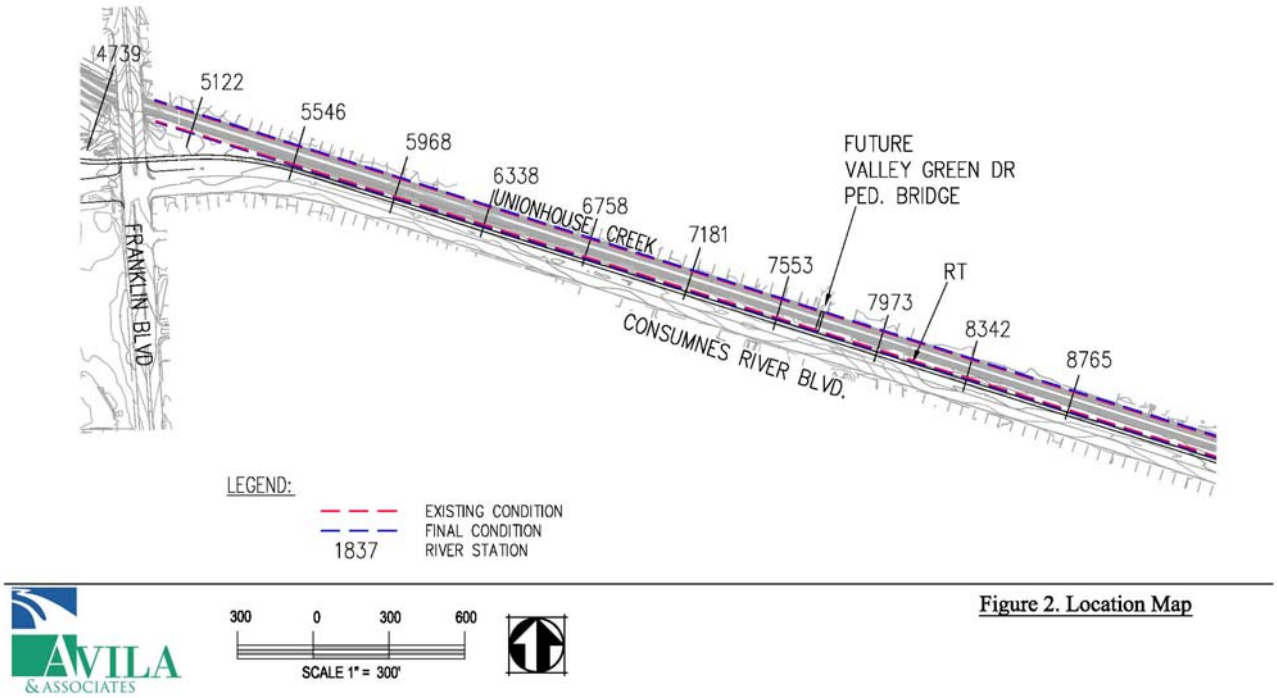


Figure 2: Plan view of HEC-RAS Cross sections for Franklin Blvd to Valley Green Pedestrian Bridge

1. 100-year Discharge Water Surface Elevation Results Existing Conditions

As described above Avila and Associates revised the existing conditions model substantially. For ease of display, the model is split into three reaches as shown in Figure 3 through Figure 5 for the existing conditions model below. Because it provides the highest water surface elevation, the discharges are all for Condition 2A.

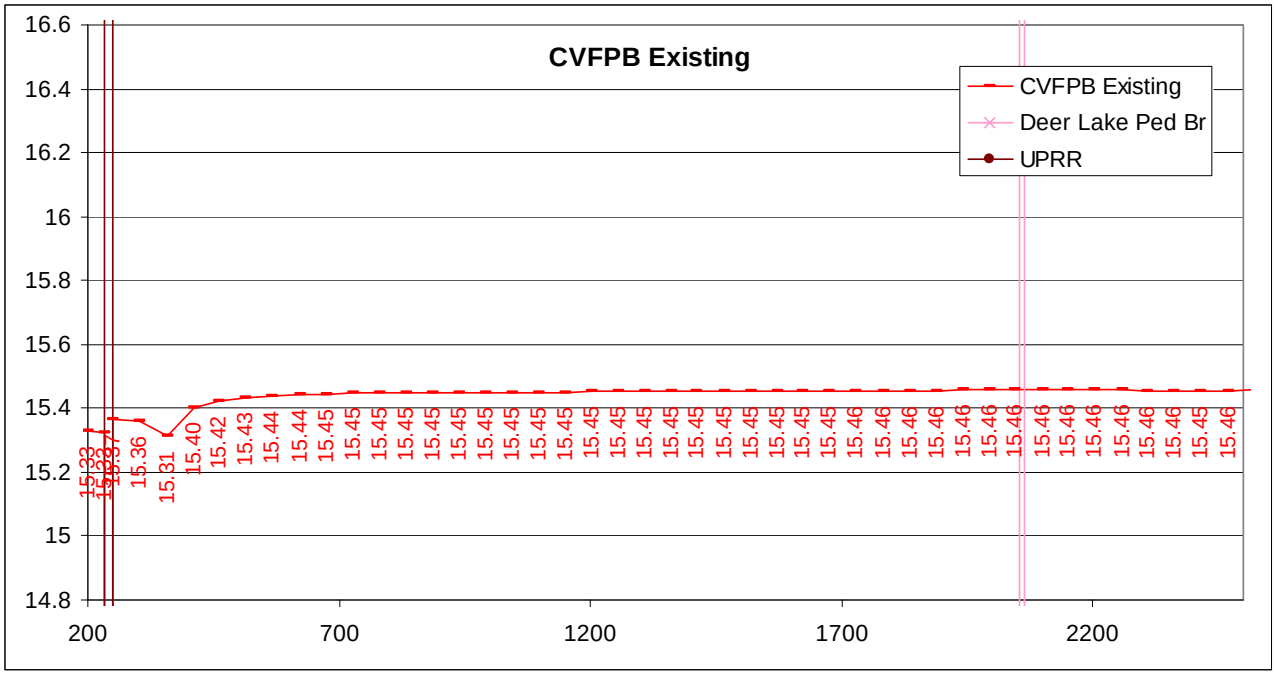


Figure 3: 100-year water surface profile for the CVFPB existing conditions for Station 200 to 2500

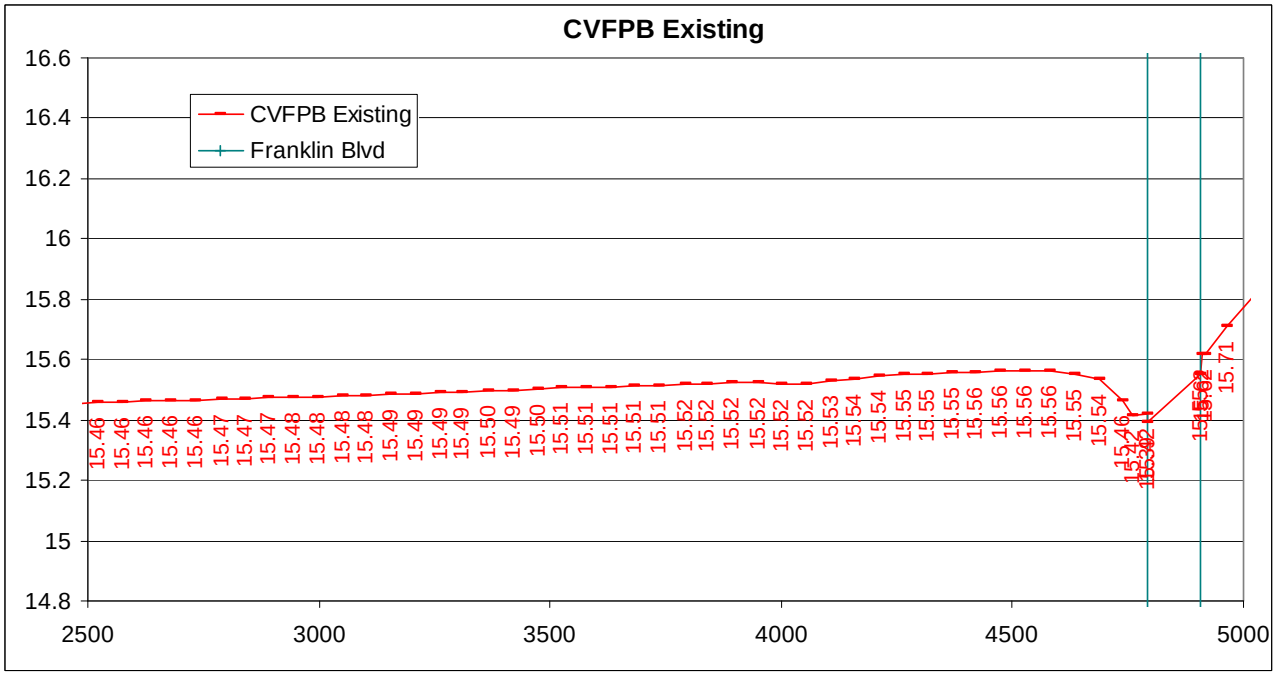


Figure 4: 100-year water surface profile for the CVFPB existing conditions for Station 2500 to 5000

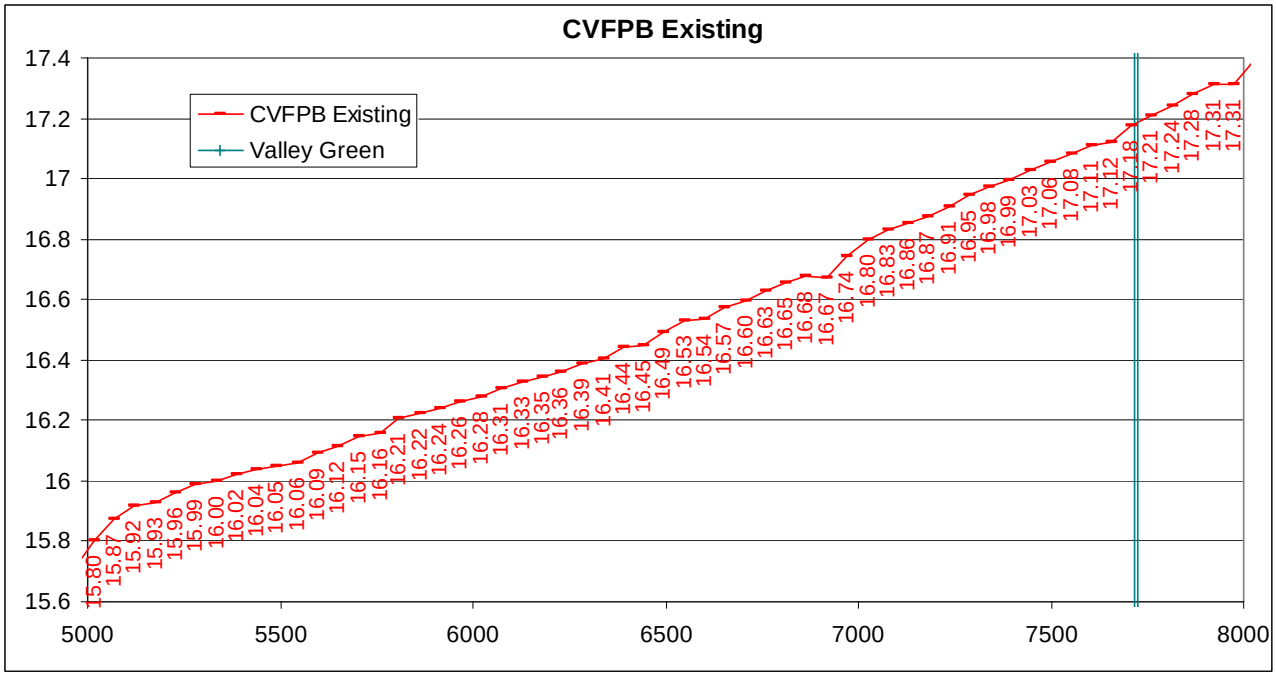


Figure 5: 100-year water surface profile for the CVFPB existing conditions for Station 5000 to 8000

2. 100-year Discharge Water Surface Elevation Results Proposed Conditions

The proposed conditions model included the following changes to the existing conditions model:

1. Adding the embankment fill between Franklin Blvd and the UPRR tracks to the CVFPB Existing Conditions reducing the effective flow area between the downstream limits of the detention pond (Sta 24+00) and UPRR (Sta 3+50).

2. The detention pond was relocated from its existing to its proposed location.

3. The proposed pedestrian bridges were added to the HEC-RAS model.

4. The proposed MC bridges were added into the model to determine the cumulative impact of all the proposed RT components.

The proposed conditions model is shown in Figure 6 through Figure 8 below:

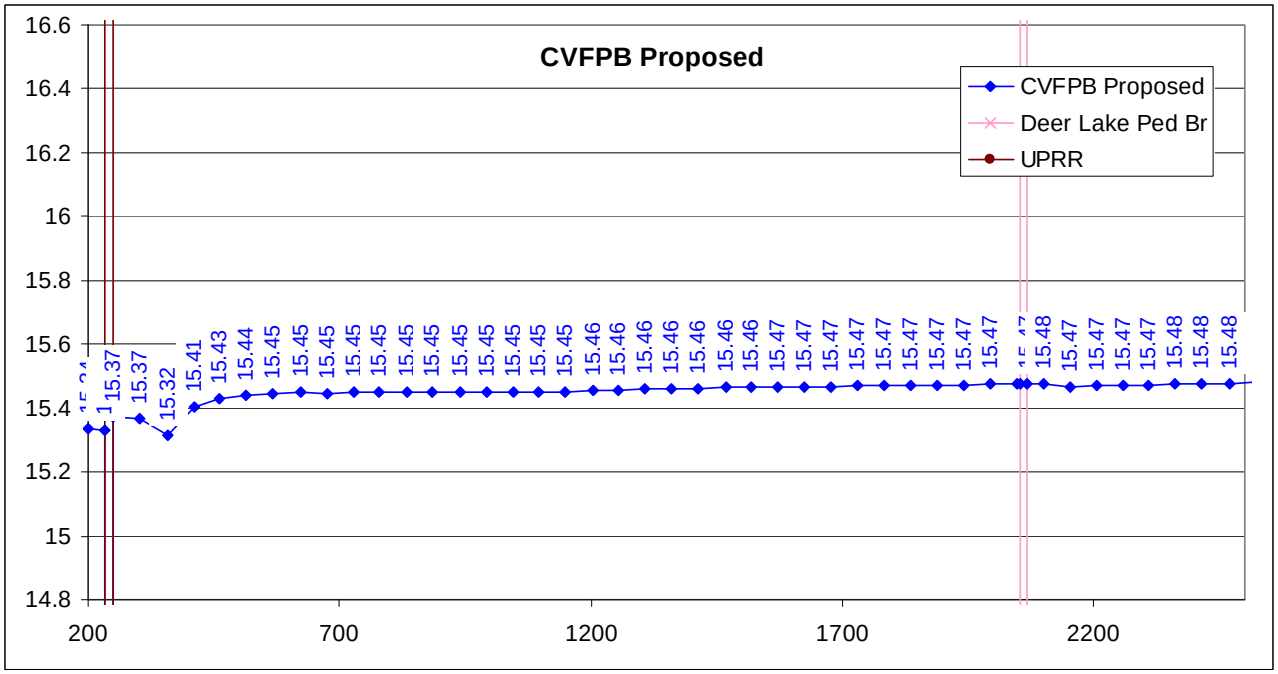


Figure 6: 100-year water surface profile for the CVFPB Proposed conditions for Station 200 to 2500

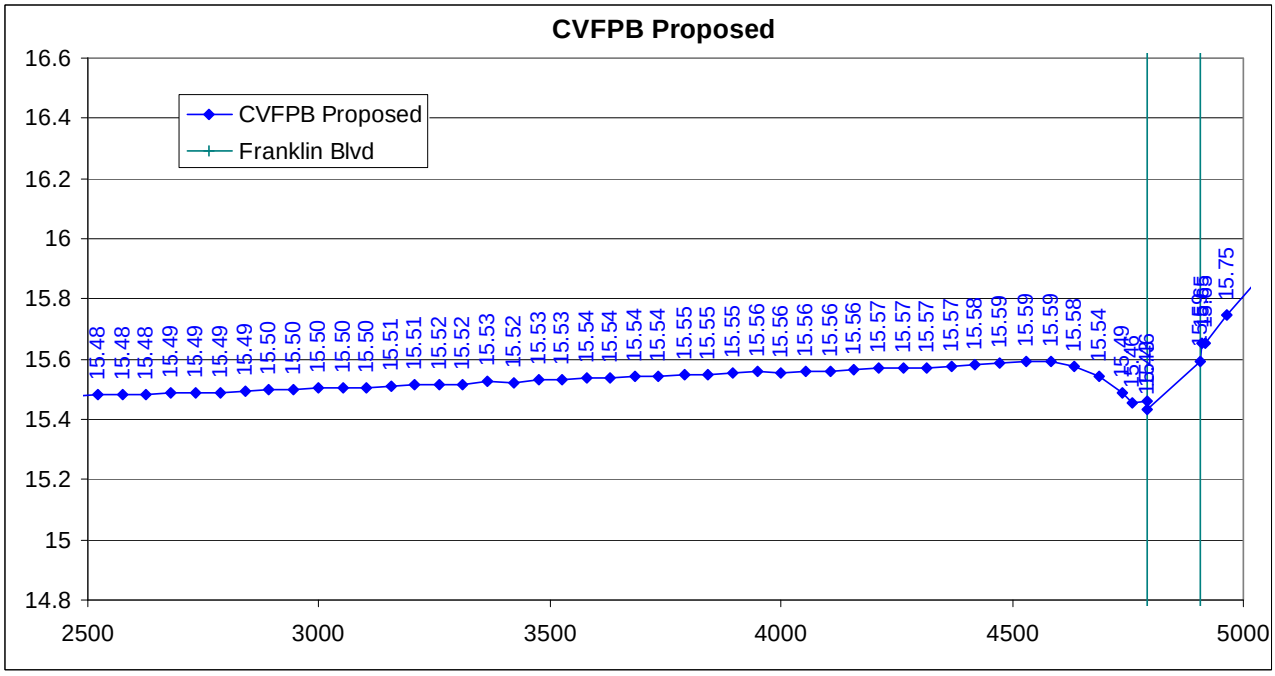


Figure 7: 100-year water surface profile for the CVFPB Proposed conditions for Station 2500 to 5000

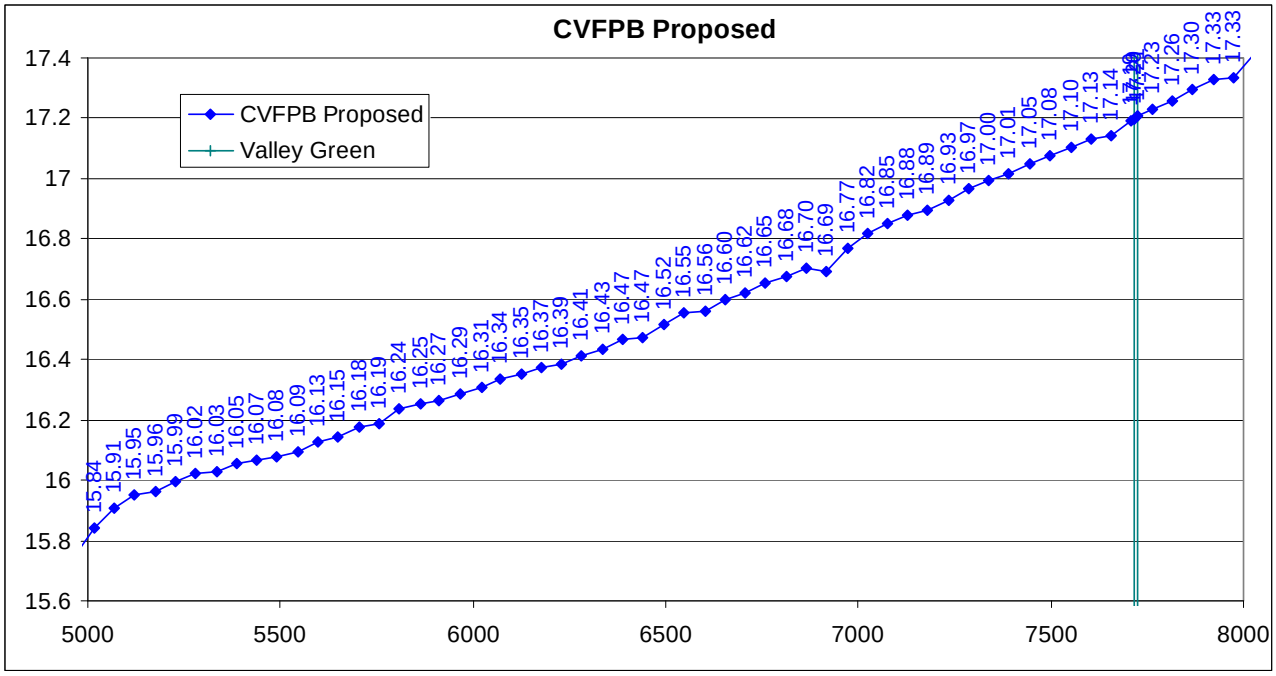


Figure 8: 100-year water surface profile for the CVFPB Proposed conditions for Station 5000 to 8000

3. 100-year Discharge Water Surface Elevation Results Existing vs. Proposed Conditions

The existing and proposed conditions models are superimposed in Figure 9 through Figure 11 below. As shown in the figures, the maximum calculated increase in water surface elevation is 0.04-ft or approximately 0.5-inches.

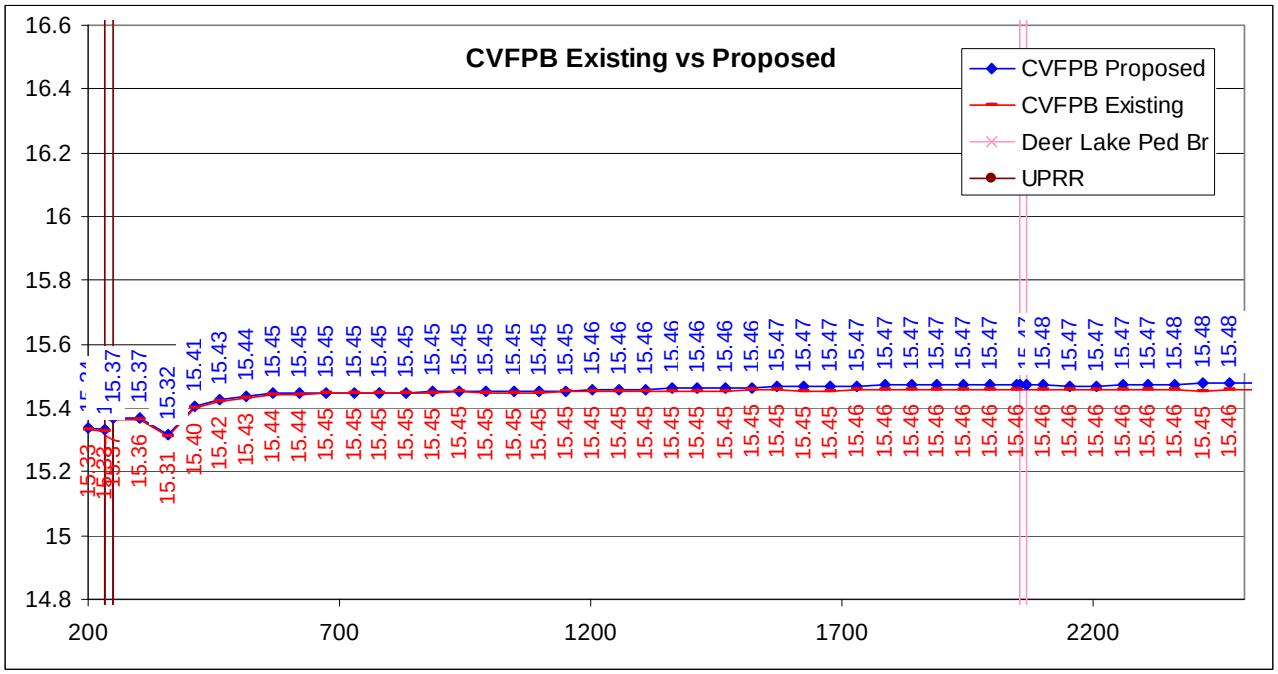


Figure 9: 100-year water surface profile for the CVFPB Existing versus Proposed conditions for Station 200 to 2500

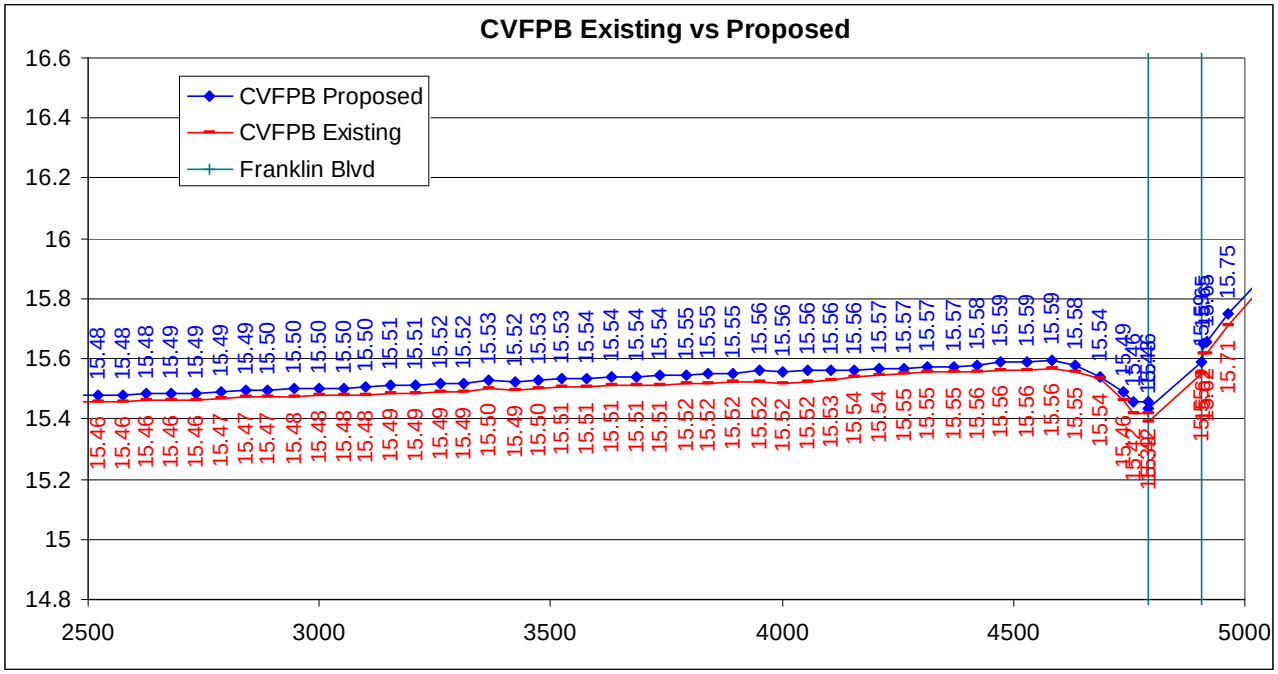


Figure 10: 100-year water surface profile for the CVFPB Existing versus Proposed conditions for Station 2500 to 5000

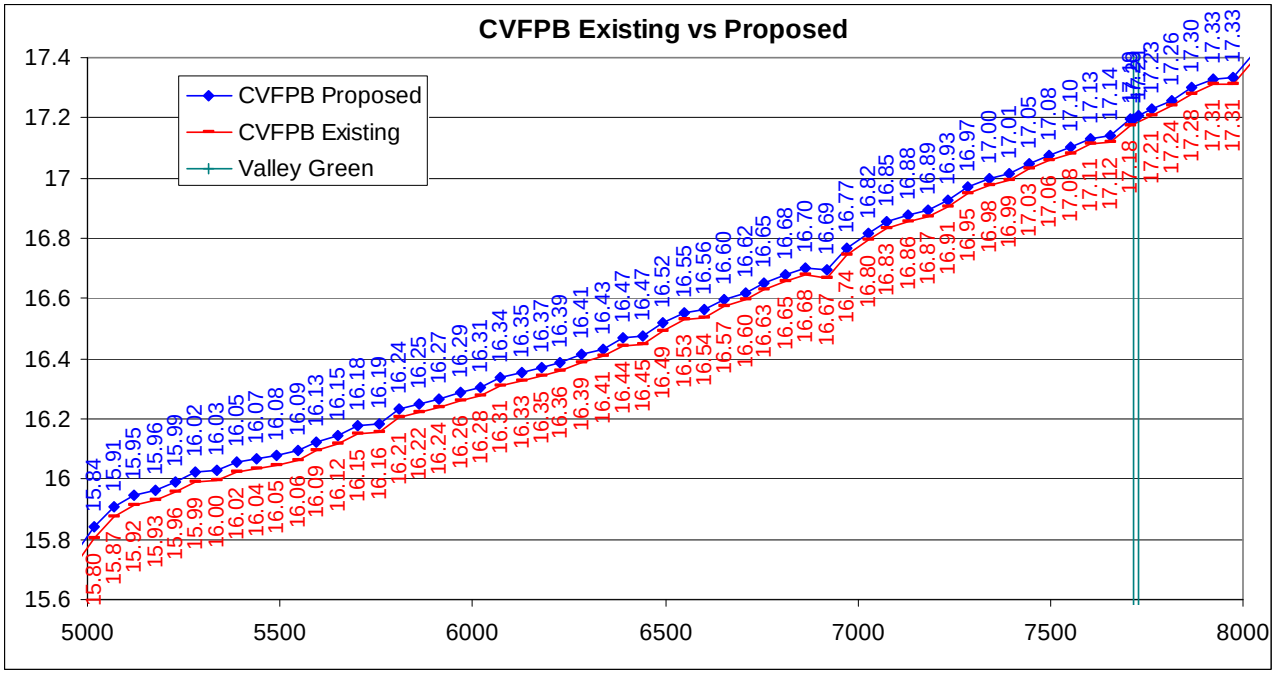


Figure 11: 100-year water surface profile for the CVFPB Existing versus Proposed conditions for Station 5000 to 8000

4. Bridge Scour and Freeboard Analysis

Two bridges are proposed to be constructed by the Sacramento Regional Transit Agency (RT). The Deer Lake Pedestrian Bridge located at station 2066 between the UPRR and Franklin Blvd will have three (3) four-ft diameter piers in the waterway. The bridge provides a minimum of 4.2 feet of freeboard above the 100-year design discharge and has a potential local pier scour

depth of 3-ft using the highly conservative Colorado State University (CSU) equation found in the FHWA publication Evaluating Scour at Bridges[1].

The Valley Green Pedestrian Bridge located at station 7727 provides a minimum of 4.3 feet of freeboard above the 100-year design discharge and is a 1-span bridge which has no piers and thus no local pier scour.

5. Velocity Table

In addition to the minimal change in water surface elevation, there is also a negligible change in velocity caused by the project. As shown in the table below, the velocity ranges from 0.3 to 4.9 feet per second. The maximum change in velocity is 0.58 feet per second. Given the relatively low velocities and minor change of less than 1 foot per second, the change in velocity cause by the project is considered insignificant.

River Station	Existing Velocity (ft/s)	Proposed Velocity (ft/s)	Difference Proposed-Existing (ft/s)
200	1.21	1.21	0
232	1.45	1.45	0
241. UPRR			
250	1.47	1.47	0
304	1.63	1.63	0
359	2.77	2.77	0
411	1.87	1.87	0
461	1.46	1.46	0
515	1.29	1.29	0
567	0.98	0.98	0
622	0.84	0.83	-0.01
675	0.74	1.03	0.29
729	0.67	1.03	0.36
780	0.64	1.02	0.38
834	0.61	1.03	0.42
886	0.58	1.05	0.47
940	0.59	1.07	0.48
992	0.67	1.12	0.45
1046	0.74	1.12	0.38
1097	0.9	1.23	0.33
1150	0.84	1.25	0.41
1204	0.59	1.12	0.53
1255	0.41	0.97	0.56
1309	0.41	0.94	0.53
1361	0.39	0.93	0.54
1412	0.37	0.9	0.53
1468	0.37	0.88	0.51
1520	0.4	0.88	0.48

1) [1] Richardson, E.V., S.R. Davis, 2001, "Evaluating Scour at Bridges," Hydraulic Engineering Circular 18 Fourth Edition, FHWA NHI-01-001, Washington, D.C.

River Station	Existing Velocity (ft/s)	Proposed Velocity (ft/s)	Difference Proposed-Existing (ft/s)
1572	0.46	0.89	0.43
1624	0.53	0.89	0.36
1676	0.58	0.84	0.26
1729	0.58	0.82	0.24
1784	0.57	0.77	0.2
1837	0.56	0.75	0.19
1889	0.58	0.76	0.18
1942	0.57	0.76	0.19
1995	0.58	0.7	0.12
2046	0.65	0.74	0.09
Deer Lake Bridge			
2101	0.72	0.76	0.04
2152	0.77	1.35	0.58
2205	0.81	1.33	0.52
2258	0.88	1.33	0.45
2309	1.02	1.32	0.3
2363	1.13	1.31	0.18
2416	1.26	1.39	0.13
2471	1.32	1.4	0.08
2521	1.28	1.36	0.08
2575	1.33	1.43	0.1
2627	1.28	1.42	0.14
2681	1.35	1.46	0.11
2734	1.54	1.6	0.06
2789	1.45	1.55	0.1
2840	1.38	1.48	0.1
2890	1.38	1.46	0.08
2944	1.35	1.45	0.1
2998	1.4	1.47	0.07
3052	1.45	1.56	0.11
3102	1.43	1.57	0.14
3155	1.37	1.47	0.1
3208	1.39	1.48	0.09
3262	1.35	1.44	0.09
3311	1.53	1.64	0.11
3366	1.29	1.37	0.08
3422	1.64	1.71	0.07
3475	1.41	1.52	0.11
3525	1.38	1.49	0.11
3579	1.39	1.51	0.12
3631	1.41	1.5	0.09
3684	1.42	1.51	0.09
3736	1.48	1.53	0.05
3792	1.43	1.54	0.11
3841	1.4	1.53	0.13
3894	1.36	1.47	0.11
3950	1.53	1.4	-0.13
4001	1.72	1.63	-0.09
4054	1.75	1.59	-0.16

River Station	Existing Velocity (ft/s)	Proposed Velocity (ft/s)	Difference Proposed-Existing (ft/s)
4107	1.63	1.65	0.02
4158	1.57	1.68	0.11
4211	1.47	1.64	0.17
4265	1.39	1.72	0.33
4316	1.34	1.73	0.39
4370	1.44	1.8	0.36
4421	1.59	1.77	0.18
4473	1.39	1.68	0.29
4529	1.55	1.68	0.13
4583	1.61	1.66	0.05
4634	2.12	2.28	0.16
4688	2.78	3.19	0.41
4739	4.02	4.13	0.11
4759.03*	4.72	4.7	-0.02
4792	4.89	4.87	-0.02
4851. Franklin Blvd			
4910	4.5	4.48	-0.02
4918.27*	4.51	4.49	-0.02
4964	3.99	3.97	-0.02
5017	3.65	3.61	-0.04
5070	3.32	3.3	-0.02
5122	3.11	3.09	-0.02
5176	3.21	3.19	-0.02
5228	3.1	3.08	-0.02
5279	2.98	2.96	-0.02
5334	3.17	3.15	-0.02
5387	3.11	3.09	-0.02
5440	3.21	3.19	-0.02
5491	3.31	3.29	-0.02
5546	3.41	3.39	-0.02
5596	3.3	3.28	-0.02
5649	3.31	3.3	-0.01
5703	3.22	3.21	-0.01
5758	3.44	3.42	-0.02
5808	3.19	3.18	-0.01
5862	3.26	3.24	-0.02
5913	3.32	3.3	-0.02
5968	3.34	3.32	-0.02
6021	3.41	3.39	-0.02
6072	3.32	3.3	-0.02
6127	3.37	3.35	-0.02
6179	3.41	3.4	-0.01
6229	3.52	3.51	-0.01
6282	3.5	3.48	-0.02
6338	3.58	3.56	-0.02
6390	3.53	3.51	-0.02
6442	3.76	3.75	-0.01
6495	3.59	3.58	-0.01
6549	3.52	3.5	-0.02

River Station	Existing Velocity (ft/s)	Proposed Velocity (ft/s)	Difference Proposed-Existing (ft/s)
6602	3.7	3.68	-0.02
6654	3.65	3.64	-0.01
6707	3.69	3.68	-0.01
6758	3.62	3.61	-0.01
6812	3.67	3.66	-0.01
6864	3.71	3.69	-0.02
6918	4.14	4.12	-0.02
6971	3.88	3.87	-0.01
7026	3.73	3.72	-0.01
7076	3.67	3.65	-0.02
7129	3.71	3.69	-0.02
7181	3.83	3.81	-0.02
7235	3.81	3.8	-0.01
7286	3.69	3.67	-0.02
7340	3.69	3.68	-0.01
7392	3.78	3.77	-0.01
7446	3.71	3.7	-0.01
7498	3.72	3.71	-0.01
7553	3.76	3.75	-0.01
7604	3.75	3.74	-0.01
7656	4.01	4	-0.01
7709	3.85	3.84	-0.01
Valley Green Ped			0
7762	3.81	3.8	-0.01
7815	3.82	3.82	0

Additional Model Output Parameters for Existing and Proposed Conditions

River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)
21014	100 year	Existing	557	21.98	27.31		27.32	0.000157	1.16
21014	100 year	Proposed	557	21.98	27.31		27.32	0.000157	1.16
20493	100 year	Existing	557	20.59	27.31		27.31	0.000003	0.22
20493	100 year	Proposed	557	20.59	27.31		27.31	0.000003	0.22
19952	100 year	Existing	557	19.00	27.30		27.31	0.000013	0.48
19952	100 year	Proposed	557	19.00	27.30		27.31	0.000013	0.48
19444	100 year	Existing	557	18.76	27.29		27.29	0.00004	0.79
19444	100 year	Proposed	557	18.76	27.29		27.29	0.00004	0.79
19389	100 year	Existing	557	19.00	27.29		27.29	0.000037	0.67
19389	100 year	Proposed	557	19.00	27.29		27.29	0.000037	0.67
19334	100 year	Existing	557	19.00	27.28		27.29	0.000035	0.75
19334	100 year	Proposed	557	19.00	27.28		27.29	0.000035	0.75
19279	100 year	Existing	557	19.00	27.28		27.29	0.000031	0.72
19279	100 year	Proposed	557	19.00	27.28		27.29	0.000031	0.72
19222	100 year	Existing	557	18.85	27.28		27.29	0.000022	0.66
19222	100 year	Proposed	557	18.85	27.28		27.29	0.000022	0.66
19170	100 year	Existing	557	19.00	27.28		27.28	0.000024	0.68
19170	100 year	Proposed	557	19.00	27.28		27.28	0.000024	0.68
19111	100 year	Existing	557	19.95	27.28		27.28	0.000043	0.86
19111	100 year	Proposed	557	19.95	27.28		27.28	0.000043	0.86
19056	100 year	Existing	557	18.41	27.25		27.28	0.000124	1.42
19056	100 year	Proposed	557	18.41	27.25		27.28	0.000124	1.42
19001	100 year	Existing	557	20.00	27.24		27.27	0.000197	1.58
19001	100 year	Proposed	557	20.00	27.24		27.27	0.000197	1.58
18963	100 year	Existing	557	20.09	27.17	23.36	27.25	0.000356	2.28
18963	100 year	Proposed	557	20.09	27.17	23.36	27.25	0.000356	2.28
18909	Stockton Blvd		Bridge	25.80					
18888	100 year	Existing	557	22.24	26.62		26.82	0.001628	3.62
18888	100 year	Proposed	557	22.24	26.62		26.82	0.001628	3.62
18836	100 year	Existing	557	22.00	25.74	25.53	26.48	0.011802	6.94
18836	100 year	Proposed	557	22.00	25.74	25.53	26.48	0.011801	6.94
18782	100 year	Existing	557	21.92	25.71		25.95	0.002772	3.95
18782	100 year	Proposed	557	21.92	25.71		25.95	0.002772	3.95
18726	100 year	Existing	557	20.00	25.78		25.85	0.000495	2.25
18726	100 year	Proposed	557	20.00	25.78		25.85	0.000495	2.25
18671	100 year	Existing	557	20.12	25.45	23.17	25.78	0.001531	4.67

18671	100 year	Proposed	557	20.12	25.45	23.17	25.78	0.001531	4.67
18606	Stockton Ramp		Culvert	26.50					
18551	100 year	Existing	557	19.11	25.38		25.71	0.001537	4.63
18551	100 year	Proposed	557	19.11	25.38		25.71	0.001537	4.63
18506	100 year	Existing	557	20.96	25.32		25.6	0.002582	4.26
18506	100 year	Proposed	557	20.96	25.32		25.6	0.002582	4.26
18451	100 year	Existing	557	18.51	25.21		25.47	0.002087	4.41
18451	100 year	Proposed	557	18.51	25.21		25.47	0.002087	4.41
18396	100 year	Existing	557	18.00	25.24		25.37	0.000887	3.06
18396	100 year	Proposed	557	18.00	25.24		25.37	0.000887	3.06
18341	100 year	Existing	557	20.00	24.23	24.08	25.18	0.010643	7.89
18341	100 year	Proposed	557	20.00	24.23	24.08	25.18	0.01063	7.89
18286	100 year	Existing	557	18.48	24.60	21.54	24.84	0.000922	3.96
18286	100 year	Proposed	557	18.48	24.60	21.54	24.84	0.000922	3.96
18192	Hwy99 Bruceville		Culvert	26.07					
18036	100 year	Existing	563	17.79	24.44	21.38	24.69	0.000915	3.98
18036	100 year	Proposed	563	17.79	24.44	21.38	24.69	0.000914	3.98
18011	100 year	Existing	563	17.08	24.46	20.95	24.62	0.000964	3.16
18011	100 year	Proposed	563	17.08	24.46	20.95	24.62	0.000963	3.16
17956	100 year	Existing	563	17.66	24.37	21.13	24.55	0.001074	3.43
17956	100 year	Proposed	563	17.66	24.37	21.13	24.55	0.001074	3.43
17901	100 year	Existing	563	17.57	24.32	21.18	24.49	0.001014	3.36
17901	100 year	Proposed	563	17.57	24.32	21.18	24.49	0.001014	3.36
17846	100 year	Existing	563	17.47	24.26	21.08	24.44	0.000984	3.42
17846	100 year	Proposed	563	17.47	24.26	21.08	24.44	0.000984	3.42
17791	100 year	Existing	563	17.38	24.23	20.97	24.38	0.000878	3.07
17791	100 year	Proposed	563	17.38	24.23	20.97	24.38	0.000877	3.07
17736	100 year	Existing	563	17.29	24.13	20.90	24.32	0.001042	3.47
17736	100 year	Proposed	563	17.29	24.13	20.90	24.32	0.001041	3.47
17681	100 year	Existing	563	17.20	23.96	21.18	24.25	0.001228	4.31
17681	100 year	Proposed	563	17.20	23.96	21.18	24.25	0.001228	4.31
17651	Kaiser Hospital		Culvert	27.20					
17571	100 year	Existing	563	16.34	23.95	20.07	24.14	0.000597	3.49
17571	100 year	Proposed	563	16.34	23.96	20.07	24.14	0.000597	3.49
17516	100 year	Existing	563	16.19	23.99	19.65	24.07	0.000252	2.32
17516	100 year	Proposed	563	16.19	23.99	19.65	24.07	0.000252	2.32
17470	100 year	Existing	563	16.06	23.94	19.52	24.05	0.000134	2.74
17470	100 year	Proposed	563	16.06	23.94	19.52	24.05	0.000134	2.74
17391	Wyndham Dr		Bridge	26.50					
17347	100 year	Existing	563	16.08	23.87	19.69	24	0.000174	2.94
17347	100 year	Proposed	563	16.08	23.87	19.69	24	0.000174	2.94

17296	100 year	Existing	563	16.06	23.86	19.68	23.98	0.000377	2.79
17296	100 year	Proposed	563	16.06	23.86	19.68	23.98	0.000377	2.79
17241	100 year	Existing	563	16.04	23.84	19.48	23.96	0.000573	2.77
17241	100 year	Proposed	563	16.04	23.84	19.48	23.96	0.000572	2.77
17186	100 year	Existing	563	16.02	23.80	19.63	23.92	0.00061	2.83
17186	100 year	Proposed	563	16.02	23.80	19.63	23.92	0.00061	2.83
17131	100 year	Existing	563	15.99	23.76	19.60	23.89	0.000618	2.83
17131	100 year	Proposed	563	15.99	23.77	19.60	23.89	0.000617	2.83
17076	100 year	Existing	563	15.97	23.74	19.61	23.85	0.000545	2.72
17076	100 year	Proposed	563	15.97	23.74	19.61	23.85	0.000544	2.72
17021	100 year	Existing	563	15.95	23.69	19.56	23.82	0.000621	2.85
17021	100 year	Proposed	563	15.95	23.70	19.56	23.82	0.000621	2.85
16966	100 year	Existing	563	15.93	23.67	19.49	23.79	0.000588	2.79
16966	100 year	Proposed	563	15.93	23.67	19.49	23.79	0.000588	2.79
16911	100 year	Existing	563	15.91	23.63	19.50	23.75	0.000626	2.86
16911	100 year	Proposed	563	15.91	23.63	19.50	23.75	0.000626	2.86
16856	100 year	Existing	563	15.88	23.59	19.49	23.72	0.000634	2.87
16856	100 year	Proposed	563	15.88	23.59	19.49	23.72	0.000634	2.87
16801	100 year	Existing	563	15.86	23.58	19.49	23.68	0.000545	2.46
16801	100 year	Proposed	563	15.86	23.58	19.49	23.68	0.000544	2.46
16746	100 year	Existing	563	15.84	23.56	19.54	23.65	0.00046	2.37
16746	100 year	Proposed	563	15.84	23.56	19.54	23.65	0.00046	2.37
16691	100 year	Existing	563	15.82	23.51	19.47	23.62	0.000532	2.66
16691	100 year	Proposed	563	15.82	23.51	19.47	23.62	0.000531	2.66
16636	100 year	Existing	563	15.80	23.46	19.41	23.58	0.000678	2.85
16636	100 year	Proposed	563	15.80	23.46	19.41	23.58	0.000678	2.85
16581	100 year	Existing	563	15.77	23.44	19.38	23.54	0.000556	2.51
16581	100 year	Proposed	563	15.77	23.44	19.38	23.54	0.000556	2.51
16526	100 year	Existing	563	15.75	23.37	19.36	23.5	0.000678	2.92
16526	100 year	Proposed	563	15.75	23.37	19.36	23.5	0.000678	2.92
16471	100 year	Existing	563	15.73	23.35	19.34	23.46	0.000615	2.67
16471	100 year	Proposed	563	15.73	23.35	19.34	23.46	0.000615	2.67
16416	100 year	Existing	563	15.71	23.30	19.26	23.43	0.000611	2.80
16416	100 year	Proposed	563	15.71	23.31	19.26	23.43	0.00061	2.80
16361	100 year	Existing	563	15.69	23.27	19.17	23.39	0.000592	2.79
16361	100 year	Proposed	563	15.69	23.27	19.17	23.39	0.000591	2.79
16306	100 year	Existing	563	15.66	23.23	19.27	23.36	0.000671	2.82
16306	100 year	Proposed	563	15.66	23.24	19.27	23.36	0.00067	2.81
16251	100 year	Existing	563	15.64	23.18	19.25	23.32	0.000697	2.98
16251	100 year	Proposed	563	15.64	23.18	19.25	23.32	0.000697	2.97
16196	100 year	Existing	563	15.62	23.19	19.01	23.27	0.00043	2.39

16196	100 year	Proposed	563	15.62	23.19	19.01	23.28	0.00043	2.39
16141	100 year	Existing	563	15.60	23.16	19.34	23.25	0.000447	2.41
16141	100 year	Proposed	563	15.60	23.16	19.34	23.25	0.000447	2.41
16086	100 year	Existing	563	15.58	23.11	19.21	23.22	0.000622	2.66
16086	100 year	Proposed	563	15.58	23.11	19.21	23.22	0.000621	2.66
16031	100 year	Existing	563	15.55	23.10	18.96	23.18	0.000435	2.32
16031	100 year	Proposed	563	15.55	23.10	18.96	23.18	0.000434	2.32
15976	100 year	Existing	563	15.53	23.02	19.14	23.15	0.00071	2.87
15976	100 year	Proposed	563	15.53	23.02	19.14	23.15	0.00071	2.87
15921	100 year	Existing	563	15.51	23.00	19.07	23.11	0.000586	2.58
15921	100 year	Proposed	563	15.51	23.00	19.07	23.11	0.000586	2.58
15866	100 year	Existing	563	15.49	22.95	19.11	23.07	0.000729	2.77
15866	100 year	Proposed	563	15.49	22.95	19.11	23.07	0.000729	2.77
15811	100 year	Existing	563	15.47	22.91	19.08	23.03	0.000718	2.76
15811	100 year	Proposed	563	15.47	22.91	19.08	23.03	0.000717	2.76
15756	100 year	Existing	563	15.44	22.89	19.13	22.99	0.000526	2.53
15756	100 year	Proposed	563	15.44	22.89	19.13	22.99	0.000525	2.53
15701	100 year	Existing	563	15.42	22.86	19.10	22.96	0.000587	2.41
15701	100 year	Proposed	563	15.42	22.87	19.10	22.96	0.000587	2.41
15646	100 year	Existing	563	15.40	22.80	19.01	22.92	0.00057	2.75
15646	100 year	Proposed	563	15.40	22.81	19.01	22.92	0.000569	2.75
15591	100 year	Existing	563	15.38	22.76	18.89	22.88	0.000754	2.82
15591	100 year	Proposed	563	15.38	22.76	18.89	22.89	0.000753	2.82
15536	100 year	Existing	563	15.36	22.70	18.97	22.84	0.000758	3.06
15536	100 year	Proposed	563	15.36	22.70	18.97	22.84	0.000757	3.06
15481	100 year	Existing	563	15.33	22.70	18.94	22.79	0.000548	2.45
15481	100 year	Proposed	563	15.33	22.70	18.94	22.79	0.000548	2.44
15426	100 year	Existing	563	15.31	22.66	18.89	22.76	0.000559	2.51
15426	100 year	Proposed	563	15.31	22.66	18.89	22.76	0.000558	2.51
15371	100 year	Existing	563	15.29	22.63	18.88	22.73	0.000584	2.56
15371	100 year	Proposed	563	15.29	22.63	18.88	22.73	0.000583	2.56
15316	100 year	Existing	563	15.27	22.62	18.63	22.69	0.000491	2.20
15316	100 year	Proposed	563	15.27	22.62	18.63	22.69	0.00049	2.20
15261	100 year	Existing	563	15.25	22.53	18.86	22.65	0.000915	2.72
15261	100 year	Proposed	563	15.25	22.54	18.86	22.65	0.000915	2.72
15206	100 year	Existing	563	15.22	22.50	18.76	22.61	0.000608	2.59
15206	100 year	Proposed	563	15.22	22.50	18.76	22.61	0.000607	2.58
15151	100 year	Existing	563	15.20	22.47	18.92	22.57	0.000574	2.60
15151	100 year	Proposed	563	15.20	22.47	18.92	22.58	0.000573	2.60
15096	100 year	Existing	563	15.18	22.43	18.61	22.54	0.000628	2.63
15096	100 year	Proposed	563	15.18	22.43	18.61	22.54	0.000627	2.63

15041	100 year	Existing	563	15.16	22.35	18.77	22.49	0.000967	3.03
15041	100 year	Proposed	563	15.16	22.35	18.77	22.5	0.000966	3.03
14986	100 year	Existing	563	15.14	22.35	18.72	22.44	0.000521	2.47
14986	100 year	Proposed	563	15.14	22.35	18.72	22.44	0.000521	2.47
14931	100 year	Existing	563	15.11	22.33	18.15	22.41	0.000407	2.25
14931	100 year	Proposed	563	15.11	22.34	18.15	22.41	0.000407	2.25
14876	100 year	Existing	563	15.09	22.26	18.70	22.38	0.000792	2.70
14876	100 year	Proposed	563	15.09	22.27	18.70	22.38	0.000791	2.70
14821	100 year	Existing	563	15.07	22.17	18.68	22.32	0.001006	3.14
14821	100 year	Proposed	563	15.07	22.17	18.68	22.33	0.001004	3.13
14766	100 year	Existing	563	15.05	22.15	18.70	22.27	0.00079	2.77
14766	100 year	Proposed	563	15.05	22.15	18.70	22.27	0.000788	2.77
14711	100 year	Existing	563	15.03	22.09	18.65	22.22	0.000917	2.85
14711	100 year	Proposed	563	15.03	22.09	18.65	22.22	0.000915	2.85
14656	100 year	Existing	563	15.00	22.06	18.50	22.17	0.000675	2.73
14656	100 year	Proposed	563	15.00	22.06	18.50	22.17	0.000674	2.73
14601	100 year	Existing	563	14.98	22.00	18.59	22.13	0.000724	2.95
14601	100 year	Proposed	563	14.98	22.00	18.59	22.13	0.000723	2.94
14546	100 year	Existing	563	14.96	22.00	17.96	22.09	0.000454	2.38
14546	100 year	Proposed	563	14.96	22.00	17.96	22.09	0.000453	2.37
14491	100 year	Existing	563	14.94	21.97	18.27	22.06	0.000486	2.34
14491	100 year	Proposed	563	14.94	21.98	18.27	22.06	0.000485	2.34
14436	100 year	Existing	563	14.92	21.91	18.21	22.03	0.000697	2.76
14436	100 year	Proposed	563	14.92	21.91	18.21	22.03	0.000695	2.76
14381	100 year	Existing	563	14.89	21.85	18.54	21.98	0.000786	2.92
14381	100 year	Proposed	563	14.89	21.85	18.54	21.99	0.000785	2.92
14326	100 year	Existing	563	14.87	21.79	18.48	21.94	0.000906	3.07
14326	100 year	Proposed	563	14.87	21.79	18.48	21.94	0.000905	3.07
14271	100 year	Existing	563	14.85	21.75	18.45	21.88	0.000889	2.99
14271	100 year	Proposed	563	14.85	21.75	18.45	21.89	0.000887	2.99
14216	100 year	Existing	563	14.83	21.69	18.49	21.84	0.000884	3.05
14216	100 year	Proposed	563	14.83	21.69	18.49	21.84	0.000883	3.04
14161	100 year	Existing	563	14.81	21.62	18.44	21.78	0.000917	3.28
14161	100 year	Proposed	563	14.81	21.62	18.44	21.79	0.000915	3.28
14106	100 year	Existing	563	14.78	21.59	18.31	21.73	0.000806	2.92
14106	100 year	Proposed	563	14.78	21.60	18.31	21.73	0.000804	2.92
14051	100 year	Existing	563	14.76	21.51	18.36	21.67	0.001083	3.25
14051	100 year	Proposed	563	14.76	21.51	18.36	21.68	0.001081	3.25
13996	100 year	Existing	563	14.74	21.46	18.39	21.61	0.000907	3.09
13996	100 year	Proposed	563	14.74	21.47	18.39	21.62	0.000905	3.09
13941	100 year	Existing	563	14.72	21.40	17.99	21.57	0.000579	3.29

13941	100 year	Proposed	563	14.72	21.41	17.99	21.57	0.000578	3.29
13923	100 year	Existing	563	14.71	21.36	18.29	21.56	0.000388	3.62
13923	100 year	Proposed	563	14.71	21.36	18.29	21.56	0.000387	3.62
13880	Alpine Frost Dr		Bridge	24.82					
13844	100 year	Existing	563	14.68	21.15	18.29	21.36	0.000468	3.74
13844	100 year	Proposed	563	14.68	21.15	18.29	21.37	0.000466	3.74
13831	100 year	Existing	563	14.60	21.15	18.21	21.34	0.000808	3.49
13831	100 year	Proposed	563	14.60	21.16	18.21	21.35	0.000805	3.49
13776	100 year	Existing	563	14.00	21.18	17.00	21.25	0.000371	2.15
13776	100 year	Proposed	563	14.00	21.19	17.00	21.26	0.00037	2.15
13721	100 year	Existing	563	13.89	21.12	17.31	21.23	0.000558	2.57
13721	100 year	Proposed	563	13.89	21.13	17.31	21.23	0.000557	2.56
13666	100 year	Existing	563	13.54	21.06	17.15	21.19	0.000728	2.93
13666	100 year	Proposed	563	13.54	21.06	17.15	21.19	0.000726	2.93
13611	100 year	Existing	563	13.19	21.03	16.80	21.15	0.000599	2.79
13611	100 year	Proposed	563	13.19	21.03	16.80	21.15	0.000597	2.79
13556	100 year	Existing	563	12.84	21.01	16.45	21.11	0.000498	2.58
13556	100 year	Proposed	563	12.84	21.01	16.45	21.12	0.000496	2.58
13501	100 year	Existing	563	12.49	20.99	16.10	21.09	0.000421	2.44
13501	100 year	Proposed	563	12.49	21.00	16.10	21.09	0.00042	2.44
13446	100 year	Existing	563	12.13	20.98	15.74	21.06	0.000348	2.30
13446	100 year	Proposed	563	12.13	20.98	15.74	21.07	0.000347	2.30
13391	100 year	Existing	563	11.78	20.97	15.40	21.04	0.000296	2.14
13391	100 year	Proposed	563	11.78	20.97	15.40	21.05	0.000295	2.13
13336	100 year	Existing	563	11.43	20.97	15.10	21.02	0.000223	1.90
13336	100 year	Proposed	563	11.43	20.97	15.10	21.03	0.000222	1.90
13281	100 year	Existing	563	10.61	20.96	14.49	21.01	0.000182	1.76
13281	100 year	Proposed	563	10.61	20.97	14.49	21.01	0.000182	1.76
13226	100 year	Existing	563	10.73	20.96	14.24	21	0.00013	1.55
13226	100 year	Proposed	563	10.73	20.96	14.24	21	0.000129	1.55
13147	100 year	Existing	1880	10.22	20.80	14.71	20.96	0.000449	3.18
13147	100 year	Proposed	1880	10.22	20.81	14.71	20.96	0.000448	3.18
13116	100 year	Existing	1880	9.00	20.77	14.51	20.94	0.000497	3.36
13116	100 year	Proposed	1880	9.00	20.77	14.51	20.95	0.000496	3.36
13061	100 year	Existing	1880	9.40	20.61	15.21	20.9	0.000892	4.32
13061	100 year	Proposed	1880	9.40	20.61	15.21	20.9	0.00089	4.31
13006	100 year	Existing	1880	9.98	20.63	15.11	20.83	0.00059	3.57
13006	100 year	Proposed	1880	9.98	20.64	15.11	20.83	0.000588	3.57
12951	100 year	Existing	1880	9.89	20.60	15.09	20.8	0.000577	3.53
12951	100 year	Proposed	1880	9.89	20.61	15.09	20.8	0.000576	3.53
12896	100 year	Existing	1880	9.80	20.57	15.16	20.76	0.000559	3.51

12896	100 year	Proposed	1880	9.80	20.58	15.16	20.77	0.000558	3.51
12841	100 year	Existing	1880	9.70	20.55	14.96	20.73	0.000518	3.36
12841	100 year	Proposed	1880	9.70	20.56	14.96	20.73	0.000517	3.35
12786	100 year	Existing	1880	9.61	20.43	15.33	20.69	0.000787	4.09
12786	100 year	Proposed	1880	9.61	20.43	15.33	20.69	0.000785	4.08
12731	100 year	Existing	1880	9.52	20.38	15.14	20.64	0.000772	4.11
12731	100 year	Proposed	1880	9.52	20.39	15.14	20.65	0.00077	4.11
12676	100 year	Existing	1880	9.42	20.40	14.79	20.58	0.000535	3.43
12676	100 year	Proposed	1880	9.42	20.41	14.79	20.59	0.000534	3.43
12621	100 year	Existing	1880	9.33	20.36	14.89	20.55	0.000555	3.56
12621	100 year	Proposed	1880	9.33	20.36	14.89	20.56	0.000554	3.55
12566	100 year	Existing	1880	9.23	20.34	14.77	20.52	0.000514	3.42
12566	100 year	Proposed	1880	9.23	20.34	14.77	20.53	0.000513	3.42
12511	100 year	Existing	1880	9.14	20.31	14.76	20.49	0.000532	3.42
12511	100 year	Proposed	1880	9.14	20.31	14.76	20.5	0.000531	3.42
12456	100 year	Existing	1880	9.05	20.29	14.68	20.46	0.000493	3.34
12456	100 year	Proposed	1880	9.05	20.29	14.68	20.47	0.000492	3.34
12401	100 year	Existing	1880	8.95	20.27	14.58	20.43	0.000459	3.25
12401	100 year	Proposed	1880	8.95	20.27	14.58	20.44	0.000458	3.25
12346	100 year	Existing	1880	8.86	20.13	14.79	20.39	0.000756	4.05
12346	100 year	Proposed	1880	8.86	20.14	14.79	20.4	0.000754	4.05
12291	100 year	Existing	1880	8.77	20.14	14.17	20.34	0.000541	3.61
12291	100 year	Proposed	1880	8.77	20.14	14.17	20.35	0.00054	3.61
12236	100 year	Existing	1880	8.67	20.06	14.35	20.3	0.000687	3.96
12236	100 year	Proposed	1880	8.67	20.07	14.35	20.31	0.000685	3.95
12181	100 year	Existing	1880	8.58	20.05	14.32	20.26	0.00059	3.68
12181	100 year	Proposed	1880	8.58	20.05	14.32	20.26	0.000589	3.67
12126	100 year	Existing	1880	8.49	20.05	14.04	20.21	0.000446	3.22
12126	100 year	Proposed	1880	8.49	20.06	14.04	20.22	0.000445	3.22
12071	100 year	Existing	1880	8.39	19.89	14.56	20.17	0.000841	4.26
12071	100 year	Proposed	1880	8.39	19.89	14.56	20.18	0.000839	4.26
12016	100 year	Existing	1880	8.30	19.84	14.48	20.12	0.000855	4.26
12016	100 year	Proposed	1880	8.30	19.85	14.48	20.13	0.000852	4.25
11961	100 year	Existing	1880	8.21	19.81	14.18	20.07	0.000759	4.08
11961	100 year	Proposed	1880	8.21	19.82	14.18	20.08	0.000756	4.08
11906	100 year	Existing	1880	8.11	19.80	14.11	20.02	0.000617	3.79
11906	100 year	Proposed	1880	8.11	19.81	14.11	20.03	0.000616	3.79
11851	100 year	Existing	1880	8.02	19.79	13.90	19.98	0.000522	3.49
11851	100 year	Proposed	1880	8.02	19.80	13.90	19.99	0.00052	3.49
11796	100 year	Existing	1880	7.93	19.67	14.03	19.94	0.000771	4.17
11796	100 year	Proposed	1880	7.93	19.68	14.03	19.95	0.000769	4.16

11741	100 year	Existing	1880	7.83	19.65	13.94	19.89	0.000699	3.98
11741	100 year	Proposed	1880	7.83	19.65	13.94	19.9	0.000697	3.97
11686	100 year	Existing	1880	7.74	19.62	13.82	19.85	0.000648	3.87
11686	100 year	Proposed	1880	7.74	19.63	13.82	19.86	0.000647	3.86
11631	100 year	Existing	1880	7.65	19.54	13.80	19.81	0.000767	4.12
11631	100 year	Proposed	1880	7.65	19.55	13.80	19.82	0.000764	4.12
11576	100 year	Existing	1880	7.55	19.53	13.66	19.76	0.000631	3.80
11576	100 year	Proposed	1880	7.55	19.54	13.66	19.77	0.000629	3.80
11521	100 year	Existing	1880	7.46	19.49	13.59	19.72	0.000663	3.90
11521	100 year	Proposed	1880	7.46	19.49	13.59	19.73	0.000661	3.89
11466	100 year	Existing	1880	7.36	19.51	13.14	19.67	0.000433	3.25
11466	100 year	Proposed	1880	7.36	19.52	13.14	19.68	0.000431	3.25
11411	100 year	Existing	1880	7.27	19.49	13.20	19.65	0.000418	3.18
11411	100 year	Proposed	1880	7.27	19.50	13.20	19.65	0.000416	3.18
11356	100 year	Existing	1880	7.18	19.37	13.32	19.61	0.00068	3.93
11356	100 year	Proposed	1880	7.18	19.38	13.32	19.62	0.000678	3.92
11301	100 year	Existing	1880	7.08	19.39	12.82	19.56	0.000452	3.31
11301	100 year	Proposed	1880	7.08	19.40	12.82	19.57	0.000451	3.30
11246	100 year	Existing	1880	6.99	19.37	13.01	19.53	0.000434	3.27
11246	100 year	Proposed	1880	6.99	19.37	13.01	19.54	0.000432	3.27
11191	100 year	Existing	1880	6.90	19.35	12.93	19.5	0.000447	3.17
11191	100 year	Proposed	1880	6.90	19.36	12.93	19.51	0.000445	3.17
11136	100 year	Existing	1880	6.80	19.31	12.71	19.48	0.000441	3.27
11136	100 year	Proposed	1880	6.80	19.32	12.71	19.49	0.000439	3.26
11081	100 year	Existing	1880	6.71	19.31	12.79	19.45	0.000358	2.97
11081	100 year	Proposed	1880	6.71	19.32	12.79	19.46	0.000357	2.97
11026	100 year	Existing	1880	6.62	19.23	12.54	19.42	0.000513	3.49
11026	100 year	Proposed	1880	6.62	19.24	12.54	19.43	0.000512	3.48
10971	100 year	Existing	1880	6.52	19.18	12.73	19.39	0.000559	3.64
10971	100 year	Proposed	1880	6.52	19.19	12.73	19.4	0.000557	3.64
10916	100 year	Existing	1880	6.43	19.19	12.59	19.35	0.00041	3.22
10916	100 year	Proposed	1880	6.43	19.20	12.59	19.36	0.000409	3.21
10861	100 year	Existing	1880	6.34	19.15	12.23	19.33	0.000435	3.34
10861	100 year	Proposed	1880	6.34	19.16	12.23	19.33	0.000433	3.34
10806	100 year	Existing	1880	6.24	19.14	12.23	19.3	0.000431	3.16
10806	100 year	Proposed	1880	6.24	19.15	12.23	19.31	0.00043	3.16
10751	100 year	Existing	1880	6.15	19.06	12.30	19.26	0.000547	3.65
10751	100 year	Proposed	1880	6.15	19.07	12.30	19.27	0.000545	3.65
10696	100 year	Existing	1880	6.06	19.05	12.05	19.23	0.000447	3.39
10696	100 year	Proposed	1880	6.06	19.06	12.05	19.24	0.000446	3.39
10641	100 year	Existing	1880	5.96	19.04	11.58	19.2	0.000372	3.17

10641	100 year	Proposed	1880	5.96	19.05	11.58	19.21	0.000371	3.16
10613	100 year	Existing	1880	5.91	19.05	11.29	19.18	0.000308	2.94
10613	100 year	Proposed	1880	5.91	19.06	11.29	19.19	0.000307	2.93
10560	100 year	Existing	1880	5.82	19.02	11.33	19.17	0.000329	3.02
10560	100 year	Proposed	1880	5.82	19.03	11.33	19.18	0.000328	3.02
10508	100 year	Existing	1880	5.74	18.99	11.47	19.15	0.000365	3.16
10508	100 year	Proposed	1880	5.74	19.00	11.47	19.16	0.000364	3.16
10455	100 year	Existing	1880	5.65	18.97	11.39	19.13	0.000361	3.16
10455	100 year	Proposed	1880	5.65	18.98	11.39	19.14	0.00036	3.15
10403	100 year	Existing	1880	5.56	18.96	11.17	19.1	0.000319	3.00
10403	100 year	Proposed	1880	5.56	18.97	11.17	19.11	0.000318	3.00
10378	100 year	Existing	1880	5.52	18.95	10.84	19.1	0.000139	3.08
10378	100 year	Proposed	1880	5.52	18.96	10.84	19.11	0.000139	3.08
10369	100 year	Existing	1880	5.50	18.95	10.76	19.1	0.00009	3.07
10369	100 year	Proposed	1880	5.50	18.96	10.76	19.11	0.00009	3.07
10308. CenterPkwy			Bridge	19.75					
10251	100 year	Existing	1880	5.44	18.64	12.66	18.94	0.000237	4.36
10251	100 year	Proposed	1880	5.44	18.65	12.66	18.95	0.000236	4.35
10218.2*	100 year	Existing	1880	5.43	18.63	12.94	18.92	0.00064	4.37
10218.2*	100 year	Proposed	1880	5.43	18.64	12.94	18.93	0.000637	4.36
10191	100 year	Existing	2030	5.41	18.49	13.34	18.87	0.001206	4.98
10191	100 year	Proposed	2030	5.41	18.50	13.34	18.88	0.001201	4.97
10138	100 year	Existing	2030	5.38	18.58	11.57	18.78	0.000469	3.55
10138	100 year	Proposed	2030	5.38	18.59	11.57	18.79	0.000468	3.54
10086	100 year	Existing	2030	5.36	18.55	11.49	18.75	0.000499	3.58
10086	100 year	Proposed	2030	5.36	18.56	11.49	18.76	0.000497	3.58
10033	100 year	Existing	2030	5.33	18.52	11.51	18.72	0.000511	3.63
10033	100 year	Proposed	2030	5.33	18.53	11.51	18.74	0.000509	3.62
9981	100 year	Existing	2030	5.31	18.48	11.65	18.7	0.000563	3.76
9981	100 year	Proposed	2030	5.31	18.49	11.65	18.71	0.000561	3.76
9924	100 year	Existing	2030	5.28	18.45	11.57	18.66	0.000542	3.72
9924	100 year	Proposed	2030	5.28	18.46	11.57	18.67	0.00054	3.71
9872	100 year	Existing	2030	5.25	18.44	11.34	18.63	0.000476	3.53
9872	100 year	Proposed	2030	5.25	18.45	11.34	18.64	0.000474	3.53
9821	100 year	Existing	2030	5.23	18.40	11.45	18.6	0.000514	3.66
9821	100 year	Proposed	2030	5.23	18.41	11.45	18.61	0.000511	3.65
9768	100 year	Existing	2030	5.20	18.38	11.35	18.57	0.000483	3.57
9768	100 year	Proposed	2030	5.20	18.39	11.35	18.59	0.000481	3.56
9717	100 year	Existing	2030	5.17	18.35	11.35	18.55	0.000491	3.59
9717	100 year	Proposed	2030	5.17	18.36	11.35	18.56	0.000489	3.58
9662	100 year	Existing	2030	5.15	18.33	11.25	18.52	0.000473	3.53

9662	100 year	Proposed	2030	5.15	18.34	11.25	18.53	0.000471	3.52
9609	100 year	Existing	2030	5.12	18.30	11.22	18.49	0.000466	3.52
9609	100 year	Proposed	2030	5.12	18.31	11.22	18.51	0.000464	3.51
9557	100 year	Existing	2030	5.09	18.27	11.17	18.47	0.000477	3.54
9557	100 year	Proposed	2030	5.09	18.29	11.17	18.48	0.000475	3.54
9504	100 year	Existing	2030	5.07	18.25	11.21	18.44	0.000488	3.57
9504	100 year	Proposed	2030	5.07	18.26	11.21	18.46	0.000486	3.57
9453	100 year	Existing	2030	5.04	18.21	11.28	18.42	0.000527	3.69
9453	100 year	Proposed	2030	5.04	18.22	11.28	18.43	0.000525	3.68
9398	100 year	Existing	2030	5.01	18.18	11.23	18.39	0.000508	3.64
9398	100 year	Proposed	2030	5.01	18.19	11.23	18.4	0.000506	3.64
9347	100 year	Existing	2030	4.99	18.14	11.33	18.36	0.000543	3.74
9347	100 year	Proposed	2030	4.99	18.16	11.33	18.37	0.000541	3.73
9293	100 year	Existing	2030	4.96	18.12	11.28	18.33	0.000531	3.70
9293	100 year	Proposed	2030	4.96	18.13	11.28	18.34	0.000529	3.69
9241	100 year	Existing	2030	4.94	18.05	11.49	18.3	0.000632	3.96
9241	100 year	Proposed	2030	4.94	18.07	11.49	18.31	0.000629	3.95
9188	100 year	Existing	2030	4.91	18.03	11.30	18.26	0.000587	3.86
9188	100 year	Proposed	2030	4.91	18.04	11.30	18.27	0.000584	3.85
9134	100 year	Existing	2030	4.88	17.94	11.78	18.22	0.000758	4.26
9134	100 year	Proposed	2030	4.88	17.95	11.78	18.23	0.000754	4.25
9083	100 year	Existing	2030	4.86	17.95	11.08	18.17	0.000524	3.69
9083	100 year	Proposed	2030	4.86	17.97	11.08	18.18	0.000521	3.68
9029	100 year	Existing	2030	4.83	17.94	10.94	18.13	0.000485	3.57
9029	100 year	Proposed	2030	4.83	17.95	10.94	18.15	0.000483	3.57
8979	100 year	Existing	2030	4.80	17.90	11.02	18.11	0.000523	3.67
8979	100 year	Proposed	2030	4.80	17.91	11.02	18.12	0.00052	3.66
8924	100 year	Existing	2030	4.78	17.88	10.85	18.08	0.000478	3.54
8924	100 year	Proposed	2030	4.78	17.90	10.85	18.09	0.000475	3.53
8873	100 year	Existing	2030	4.75	17.86	10.78	18.05	0.000471	3.53
8873	100 year	Proposed	2030	4.75	17.87	10.78	18.07	0.000468	3.52
8818	100 year	Existing	2030	4.72	17.84	10.71	18.02	0.000456	3.49
8818	100 year	Proposed	2030	4.72	17.85	10.71	18.04	0.000453	3.48
8765	100 year	Existing	2030	4.70	17.81	10.75	18	0.000471	3.53
8765	100 year	Proposed	2030	4.70	17.82	10.75	18.01	0.000469	3.53
8712	100 year	Existing	2030	4.67	17.77	10.78	17.97	0.000491	3.59
8712	100 year	Proposed	2030	4.67	17.79	10.78	17.99	0.000489	3.59
8660	100 year	Existing	2030	4.64	17.75	10.67	17.95	0.000463	3.51
8660	100 year	Proposed	2030	4.64	17.77	10.67	17.96	0.000461	3.51
8609	100 year	Existing	2030	4.62	17.72	10.69	17.92	0.000484	3.57
8609	100 year	Proposed	2030	4.62	17.74	10.69	17.94	0.000481	3.57

8554	100 year	Existing	2030	4.59	17.69	10.73	17.89	0.000501	3.61
8554	100 year	Proposed	2030	4.59	17.71	10.73	17.91	0.000498	3.61
8501	100 year	Existing	2030	4.57	17.67	10.68	17.87	0.000495	3.59
8501	100 year	Proposed	2030	4.57	17.68	10.68	17.88	0.000492	3.59
8451	100 year	Existing	2030	4.54	17.64	10.62	17.84	0.000495	3.58
8451	100 year	Proposed	2030	4.54	17.66	10.62	17.86	0.000493	3.57
8394	100 year	Existing	2030	4.51	17.60	10.67	17.81	0.000537	3.69
8394	100 year	Proposed	2030	4.51	17.62	10.67	17.83	0.000534	3.68
8342	100 year	Existing	2030	4.49	17.59	10.43	17.78	0.000453	3.44
8342	100 year	Proposed	2030	4.49	17.61	10.43	17.79	0.000451	3.43
8290	100 year	Existing	2030	4.46	17.55	10.52	17.75	0.000507	3.59
8290	100 year	Proposed	2030	4.46	17.57	10.52	17.77	0.000504	3.58
8237	100 year	Existing	2030	4.43	17.53	10.42	17.72	0.000479	3.51
8237	100 year	Proposed	2030	4.43	17.55	10.42	17.74	0.000476	3.50
8185	100 year	Existing	2030	4.41	17.47	10.66	17.69	0.000576	3.80
8185	100 year	Proposed	2030	4.41	17.48	10.66	17.71	0.000573	3.79
8131	100 year	Existing	2030	4.38	17.44	10.56	17.66	0.000536	3.72
8131	100 year	Proposed	2030	4.38	17.46	10.56	17.67	0.000533	3.72
8079	100 year	Existing	2030	4.35	17.42	10.44	17.63	0.000502	3.64
8079	100 year	Proposed	2030	4.35	17.44	10.44	17.64	0.000499	3.63
8026	100 year	Existing	2030	4.33	17.39	10.44	17.6	0.00051	3.67
8026	100 year	Proposed	2030	4.33	17.41	10.44	17.62	0.000507	3.66
7973	100 year	Existing	2030	4.30	17.31	10.74	17.57	0.00064	4.03
7973	100 year	Proposed	2030	4.30	17.33	10.73	17.58	0.000636	4.02
7921	100 year	Existing	2030	4.28	17.31	10.41	17.52	0.000517	3.69
7921	100 year	Proposed	2030	4.28	17.33	10.41	17.54	0.000514	3.68
7867	100 year	Existing	2030	4.25	17.28	10.41	17.5	0.000529	3.73
7867	100 year	Proposed	2030	4.25	17.30	10.41	17.51	0.000526	3.72
7815	100 year	Existing	2030	4.22	17.24	10.47	17.47	0.000568	3.82
7815	100 year	Proposed	2030	4.22	17.26	10.47	17.48	0.000565	3.82
7762	100 year	Existing	2030	4.20	17.21	10.45	17.44	0.000565	3.81
7762	100 year	Proposed	2030	4.20	17.23	10.45	17.45	0.000562	3.80
7709	100 year	Existing	2030	4.17	17.18	10.46	17.41	0.000574	3.85
7709	100 year	Proposed	2030	4.17	17.19	10.46	17.42	0.000571	3.84
7656	100 year	Existing	2030	4.14	17.12	10.59	17.37	0.000639	4.01
7656	100 year	Proposed	2030	4.14	17.14	10.59	17.39	0.000635	4.00
7604	100 year	Existing	2030	4.12	17.11	10.32	17.33	0.000541	3.75
7604	100 year	Proposed	2030	4.12	17.13	10.32	17.35	0.000538	3.74
7553	100 year	Existing	2030	4.09	17.08	10.28	17.3	0.000545	3.76
7553	100 year	Proposed	2030	4.09	17.10	10.28	17.32	0.000542	3.75
7498	100 year	Existing	2030	4.06	17.06	10.20	17.27	0.000532	3.72

7498	100 year	Proposed	2030	4.06	17.08	10.20	17.29	0.000529	3.71
7446	100 year	Existing	2030	4.04	17.03	10.16	17.24	0.000528	3.71
7446	100 year	Proposed	2030	4.04	17.05	10.16	17.26	0.000525	3.70
7392	100 year	Existing	2030	4.01	16.99	10.21	17.21	0.000543	3.78
7392	100 year	Proposed	2030	4.01	17.01	10.21	17.23	0.000539	3.77
7340	100 year	Existing	2030	3.98	16.98	10.18	17.18	0.000515	3.69
7340	100 year	Proposed	2030	3.98	17.00	10.18	17.2	0.00051	3.68
7286	100 year	Existing	2030	3.96	16.95	10.15	17.16	0.000513	3.69
7286	100 year	Proposed	2030	3.96	16.97	10.15	17.17	0.000508	3.67
7235	100 year	Existing	2030	3.93	16.91	10.27	17.13	0.00056	3.81
7235	100 year	Proposed	2030	3.93	16.93	10.27	17.15	0.000555	3.80
7181	100 year	Existing	2030	3.91	16.87	10.24	17.1	0.000564	3.83
7181	100 year	Proposed	2030	3.91	16.89	10.24	17.12	0.000559	3.81
7129	100 year	Existing	2030	3.88	16.86	10.11	17.06	0.000527	3.71
7129	100 year	Proposed	2030	3.88	16.88	10.11	17.08	0.000522	3.69
7076	100 year	Existing	2030	3.85	16.83	10.05	17.03	0.000517	3.67
7076	100 year	Proposed	2030	3.85	16.85	10.05	17.05	0.000512	3.65
7026	100 year	Existing	2030	3.83	16.80	10.07	17.01	0.000543	3.73
7026	100 year	Proposed	2030	3.83	16.82	10.07	17.03	0.000538	3.72
6971	100 year	Existing	2030	3.80	16.74	10.14	16.97	0.000606	3.88
6971	100 year	Proposed	2030	3.80	16.77	10.14	16.99	0.0006	3.87
6918	100 year	Existing	2030	3.77	16.67	10.25	16.94	0.000706	4.14
6918	100 year	Proposed	2030	3.77	16.69	10.25	16.96	0.000701	4.12
6864	100 year	Existing	2030	3.75	16.68	9.93	16.88	0.000541	3.71
6864	100 year	Proposed	2030	3.75	16.70	9.93	16.91	0.000535	3.69
6812	100 year	Existing	2030	3.72	16.65	9.95	16.86	0.000524	3.67
6812	100 year	Proposed	2030	3.72	16.68	9.95	16.88	0.000518	3.66
6758	100 year	Existing	2030	3.69	16.63	9.87	16.83	0.000499	3.62
6758	100 year	Proposed	2030	3.69	16.65	9.87	16.85	0.000493	3.61
6707	100 year	Existing	2030	3.67	16.60	9.94	16.8	0.000527	3.69
6707	100 year	Proposed	2030	3.67	16.62	9.94	16.82	0.000521	3.68
6654	100 year	Existing	2030	3.64	16.57	9.92	16.77	0.000516	3.65
6654	100 year	Proposed	2030	3.64	16.60	9.92	16.79	0.00051	3.64
6602	100 year	Existing	2030	3.62	16.54	9.86	16.74	0.000519	3.70
6602	100 year	Proposed	2030	3.62	16.56	9.86	16.77	0.000514	3.68
6549	100 year	Existing	2030	3.59	16.53	9.74	16.71	0.00046	3.52
6549	100 year	Proposed	2030	3.59	16.55	9.74	16.73	0.000455	3.50
6495	100 year	Existing	2030	3.56	16.49	9.77	16.68	0.00049	3.59
6495	100 year	Proposed	2030	3.56	16.52	9.77	16.71	0.000484	3.58
6442	100 year	Existing	2030	3.54	16.45	9.95	16.65	0.000557	3.76
6442	100 year	Proposed	2030	3.54	16.47	9.95	16.68	0.00055	3.75

6390	100 year	Existing	2030	3.51	16.44	9.83	16.62	0.000478	3.53
6390	100 year	Proposed	2030	3.51	16.47	9.83	16.64	0.000472	3.51
6338	100 year	Existing	2030	3.48	16.41	9.72	16.59	0.000484	3.58
6338	100 year	Proposed	2030	3.48	16.43	9.72	16.62	0.000478	3.56
6282	100 year	Existing	2030	3.46	16.39	9.71	16.56	0.000466	3.50
6282	100 year	Proposed	2030	3.46	16.41	9.71	16.59	0.00046	3.48
6229	100 year	Existing	2030	3.43	16.36	9.70	16.54	0.000471	3.52
6229	100 year	Proposed	2030	3.43	16.39	9.70	16.56	0.000465	3.51
6179	100 year	Existing	2030	3.40	16.35	9.63	16.51	0.000433	3.41
6179	100 year	Proposed	2030	3.40	16.37	9.63	16.54	0.000427	3.40
6127	100 year	Existing	2030	3.38	16.33	9.59	16.49	0.000418	3.37
6127	100 year	Proposed	2030	3.38	16.35	9.59	16.51	0.000412	3.35
6072	100 year	Existing	2030	3.35	16.31	9.57	16.46	0.000411	3.32
6072	100 year	Proposed	2030	3.35	16.34	9.57	16.49	0.000405	3.30
6021	100 year	Existing	2030	3.33	16.28	9.65	16.44	0.000444	3.41
6021	100 year	Proposed	2030	3.33	16.31	9.65	16.47	0.000438	3.39
5968	100 year	Existing	2030	3.30	16.26	9.56	16.41	0.000422	3.34
5968	100 year	Proposed	2030	3.30	16.29	9.56	16.44	0.000416	3.32
5913	100 year	Existing	2030	3.27	16.24	9.50	16.39	0.000412	3.32
5913	100 year	Proposed	2030	3.27	16.27	9.50	16.42	0.000406	3.30
5862	100 year	Existing	2030	3.25	16.22	9.45	16.37	0.000394	3.26
5862	100 year	Proposed	2030	3.25	16.25	9.45	16.4	0.000388	3.24
5808	100 year	Existing	2030	3.22	16.21	9.41	16.35	0.000378	3.19
5808	100 year	Proposed	2030	3.22	16.24	9.41	16.37	0.000373	3.18
5758	100 year	Existing	2030	3.19	16.16	9.46	16.32	0.000448	3.44
5758	100 year	Proposed	2030	3.19	16.19	9.46	16.35	0.000441	3.42
5703	100 year	Existing	2030	3.17	16.15	9.30	16.29	0.000381	3.22
5703	100 year	Proposed	2030	3.17	16.18	9.30	16.32	0.000375	3.21
5649	100 year	Existing	2030	3.14	16.12	9.25	16.27	0.000404	3.31
5649	100 year	Proposed	2030	3.14	16.15	9.25	16.3	0.000398	3.30
5596	100 year	Existing	2030	3.11	16.09	9.23	16.25	0.000398	3.30
5596	100 year	Proposed	2030	3.11	16.13	9.23	16.28	0.000392	3.28
5546	100 year	Existing	2030	3.09	16.06	9.33	16.23	0.000435	3.41
5546	100 year	Proposed	2030	3.09	16.09	9.33	16.26	0.000429	3.39
5491	100 year	Existing	2030	3.06	16.05	9.28	16.2	0.000408	3.31
5491	100 year	Proposed	2030	3.06	16.08	9.28	16.23	0.000402	3.29
5440	100 year	Existing	2030	3.03	16.04	9.30	16.18	0.000389	3.21
5440	100 year	Proposed	2030	3.03	16.07	9.30	16.21	0.000383	3.19
5387	100 year	Existing	2030	3.01	16.02	9.19	16.15	0.000358	3.11
5387	100 year	Proposed	2030	3.01	16.05	9.19	16.18	0.000352	3.09
5334	100 year	Existing	2030	2.98	16.00	9.24	16.13	0.000375	3.17

5334	100 year	Proposed	2030	2.98	16.03	9.24	16.16	0.000369	3.15
5279	100 year	Existing	2030	2.95	15.99	9.10	16.11	0.000323	2.98
5279	100 year	Proposed	2030	2.95	16.02	9.10	16.14	0.000318	2.96
5228	100 year	Existing	2030	2.93	15.96	9.18	16.09	0.000355	3.10
5228	100 year	Proposed	2030	2.93	15.99	9.18	16.12	0.000349	3.08
5176	100 year	Existing	2030	2.90	15.93	9.13	16.07	0.000383	3.21
5176	100 year	Proposed	2030	2.90	15.96	9.13	16.1	0.000377	3.19
5122	100 year	Existing	2030	2.88	15.92	9.15	16.05	0.000363	3.11
5122	100 year	Proposed	2030	2.88	15.95	9.15	16.08	0.000357	3.09
5070	100 year	Existing	2062	2.85	15.87	9.26	16.02	0.000423	3.32
5070	100 year	Proposed	2062	2.85	15.91	9.26	16.06	0.000416	3.30
5017	100 year	Existing	2062	2.82	15.80	9.23	15.99	0.000526	3.65
5017	100 year	Proposed	2062	2.82	15.84	9.23	16.03	0.000511	3.61
4964	100 year	Existing	2062	2.80	15.71	9.16	15.96	0.000621	3.99
4964	100 year	Proposed	2062	2.80	15.75	9.16	15.99	0.000614	3.97
4918.27*	100 year	Existing	2062	3.00	15.62	9.90	15.93	0.000293	4.51
4918.27*	100 year	Proposed	2062	3.00	15.65	9.90	15.97	0.000289	4.49
4910	100 year	Existing	2062	2.77	15.62	9.87	15.93	0.000277	4.50
4910	100 year	Proposed	2062	2.77	15.65	9.87	15.96	0.000272	4.48
4851. Franklin Blvd			Bridge	18.45	2.80				
4792	100 year	Existing	2062	2.71	15.42	9.85	15.79	0.000319	4.89
4792	100 year	Proposed	2062	2.71	15.46	9.85	15.83	0.000315	4.87
4759.03*	100 year	Existing	2062	3.00	15.42	10.12	15.76	0.000688	4.72
4759.03*	100 year	Proposed	2062	3.00	15.46	10.12	15.8	0.000678	4.70
4739	100 year	Existing	2062	2.68	15.46	9.78	15.69	0.000701	4.02
4739	100 year	Proposed	2062	2.68	15.49	9.78	15.74	0.000737	4.13
4688	100 year	Existing	2062	2.66	15.54	9.12	15.62	0.000332	2.78
4688	100 year	Proposed	2062	2.66	15.54	9.12	15.67	0.000437	3.19
4634	100 year	Existing	2062	2.63	15.55	9.06	15.6	0.000173	2.12
4634	100 year	Proposed	2062	2.63	15.58	9.06	15.64	0.0002	2.28
4583	100 year	Existing	2062	2.61	15.56	8.76	15.59	0.000056	1.61
4583	100 year	Proposed	2062	2.61	15.59	8.76	15.62	0.00006	1.66
4529	100 year	Existing	2062	2.58	15.56	8.73	15.58	0.000052	1.55
4529	100 year	Proposed	2062	2.58	15.59	8.73	15.62	0.000061	1.68
4473	100 year	Existing	2062	2.56	15.56	8.71	15.58	0.000042	1.39
4473	100 year	Proposed	2062	2.56	15.59	8.71	15.62	0.000061	1.68
4421	100 year	Existing	2062	2.53	15.56	8.68	15.58	0.000054	1.59
4421	100 year	Proposed	2062	2.53	15.58	8.68	15.61	0.000067	1.77
4370	100 year	Existing	2062	2.50	15.55	8.65	15.57	0.000045	1.44
4370	100 year	Proposed	2062	2.50	15.57	8.66	15.61	0.00007	1.80
4316	100 year	Existing	2062	2.48	15.55	8.64	15.57	0.000039	1.34

4316	100 year	Proposed	2062	2.48	15.57	8.63	15.6	0.000065	1.73
4265	100 year	Existing	2062	2.45	15.55	8.61	15.57	0.000042	1.39
4265	100 year	Proposed	2062	2.45	15.57	8.60	15.6	0.000063	1.72
4211	100 year	Existing	2062	2.42	15.54	8.58	15.56	0.000046	1.47
4211	100 year	Proposed	2062	2.42	15.57	8.58	15.6	0.000057	1.64
4158	100 year	Existing	2062	2.40	15.54	8.55	15.56	0.000053	1.57
4158	100 year	Proposed	2062	2.40	15.56	8.55	15.59	0.000061	1.68
4107	100 year	Existing	2062	2.37	15.53	8.52	15.56	0.000057	1.63
4107	100 year	Proposed	2062	2.37	15.56	8.52	15.59	0.000058	1.65
4054	100 year	Existing	2062	2.35	15.52	8.51	15.55	0.000066	1.75
4054	100 year	Proposed	2062	2.35	15.56	8.50	15.59	0.000054	1.59
4001	100 year	Existing	2062	2.32	15.52	8.47	15.55	0.000063	1.72
4001	100 year	Proposed	2062	2.32	15.56	8.47	15.58	0.000057	1.63
3950	100 year	Existing	2062	2.29	15.52	8.44	15.55	0.00005	1.53
3950	100 year	Proposed	2062	2.29	15.56	8.45	15.58	0.000041	1.40
3894	100 year	Existing	2062	2.27	15.52	8.42	15.54	0.000039	1.36
3894	100 year	Proposed	2062	2.27	15.55	8.42	15.57	0.000046	1.47
3841	100 year	Existing	2062	2.24	15.52	8.40	15.54	0.000041	1.40
3841	100 year	Proposed	2062	2.24	15.55	8.40	15.57	0.00005	1.53
3792	100 year	Existing	2062	2.22	15.52	8.37	15.54	0.000043	1.43
3792	100 year	Proposed	2062	2.22	15.55	8.37	15.57	0.00005	1.54
3736	100 year	Existing	2062	2.19	15.51	8.34	15.53	0.000046	1.48
3736	100 year	Proposed	2062	2.19	15.54	8.34	15.57	0.000049	1.53
3684	100 year	Existing	2062	2.16	15.51	8.31	15.53	0.000042	1.42
3684	100 year	Proposed	2062	2.16	15.54	8.31	15.56	0.000048	1.51
3631	100 year	Existing	2062	2.13	15.51	8.28	15.53	0.000042	1.41
3631	100 year	Proposed	2062	2.13	15.54	8.28	15.56	0.000048	1.50
3579	100 year	Existing	2062	2.11	15.51	8.27	15.53	0.00004	1.39
3579	100 year	Proposed	2062	2.11	15.54	8.27	15.56	0.000048	1.51
3525	100 year	Existing	2096	2.08	15.51	8.29	15.52	0.00004	1.38
3525	100 year	Proposed	2096	2.08	15.53	8.29	15.56	0.000047	1.49
3475	100 year	Existing	2096	2.06	15.50	8.26	15.52	0.000042	1.41
3475	100 year	Proposed	2096	2.06	15.53	8.26	15.55	0.000049	1.52
3422	100 year	Existing	2096	2.03	15.49	8.23	15.52	0.000056	1.64
3422	100 year	Proposed	2096	2.03	15.52	8.23	15.55	0.000061	1.71
3366	100 year	Existing	2096	2.00	15.50	8.21	15.51	0.000035	1.29
3366	100 year	Proposed	2096	2.00	15.53	8.21	15.54	0.000039	1.37
3311	100 year	Existing	2096	1.97	15.49	8.17	15.51	0.000048	1.53
3311	100 year	Proposed	2096	1.97	15.52	8.17	15.54	0.000056	1.64
3262	100 year	Existing	2096	1.95	15.49	8.15	15.51	0.000038	1.35
3262	100 year	Proposed	2096	1.95	15.52	8.16	15.54	0.000043	1.44

3208	100 year	Existing	2096	1.92	15.49	8.13	15.51	0.00004	1.39
3208	100 year	Proposed	2096	1.92	15.51	8.12	15.53	0.000046	1.48
3155	100 year	Existing	2096	1.89	15.49	8.10	15.5	0.000039	1.37
3155	100 year	Proposed	2096	1.89	15.51	8.09	15.53	0.000045	1.47
3102	100 year	Existing	2096	1.87	15.48	8.08	15.5	0.000043	1.43
3102	100 year	Proposed	2096	1.87	15.50	8.08	15.53	0.000051	1.57
3052	100 year	Existing	2096	1.84	15.48	8.04	15.5	0.000043	1.45
3052	100 year	Proposed	2096	1.84	15.50	8.04	15.53	0.000051	1.56
2998	100 year	Existing	2096	1.82	15.48	8.03	15.5	0.00004	1.40
2998	100 year	Proposed	2096	1.82	15.50	8.03	15.52	0.000044	1.47
2944	100 year	Existing	2096	1.79	15.48	8.00	15.49	0.000037	1.35
2944	100 year	Proposed	2096	1.79	15.50	8.00	15.52	0.000043	1.45
2890	100 year	Existing	2096	1.76	15.47	7.96	15.49	0.000039	1.38
2890	100 year	Proposed	2096	1.76	15.50	7.96	15.52	0.000043	1.46
2840	100 year	Existing	2096	1.74	15.47	7.95	15.49	0.000039	1.38
2840	100 year	Proposed	2096	1.74	15.49	7.95	15.52	0.000045	1.48
2789	100 year	Existing	2096	1.71	15.47	7.92	15.49	0.000043	1.45
2789	100 year	Proposed	2096	1.71	15.49	7.92	15.51	0.000049	1.55
2734	100 year	Existing	2096	1.68	15.46	7.89	15.48	0.000045	1.54
2734	100 year	Proposed	2096	1.68	15.49	7.89	15.51	0.000049	1.60
2681	100 year	Existing	2096	1.66	15.46	7.86	15.48	0.000037	1.35
2681	100 year	Proposed	2096	1.66	15.49	7.86	15.51	0.000044	1.46
2627	100 year	Existing	2096	1.63	15.46	7.83	15.48	0.000033	1.28
2627	100 year	Proposed	2096	1.63	15.48	7.83	15.5	0.000041	1.42
2575	100 year	Existing	2096	1.61	15.46	7.82	15.48	0.000036	1.33
2575	100 year	Proposed	2096	1.61	15.48	7.82	15.5	0.000042	1.43
2521	100 year	Existing	2096	1.58	15.46	7.78	15.47	0.000033	1.28
2521	100 year	Proposed	2096	1.58	15.48	7.78	15.5	0.000038	1.36
2471	100 year	Existing	2096	1.55	15.46	7.76	15.47	0.000036	1.32
2471	100 year	Proposed	2096	1.55	15.48	7.76	15.5	0.00004	1.40
2416	100 year	Existing	2096	1.53	15.45	7.74	15.47	0.000032	1.26
2416	100 year	Proposed	2096	1.53	15.48	7.73	15.5	0.000039	1.39
2363	100 year	Existing	2096	1.50	15.46	7.70	15.47	0.000026	1.13
2363	100 year	Proposed	2096	1.50	15.48	7.71	15.49	0.000035	1.31
2309	100 year	Existing	2096	1.47	15.46	7.67	15.47	0.000021	1.02
2309	100 year	Proposed	2096	1.47	15.47	7.67	15.49	0.000035	1.32
2258	100 year	Existing	2096	1.45	15.46	7.66	15.46	0.000016	0.88
2258	100 year	Proposed	2096	1.45	15.47	7.66	15.49	0.000036	1.33
2205	100 year	Existing	2096	1.42	15.46	7.62	15.46	0.000013	0.81
2205	100 year	Proposed	2096	1.42	15.47	7.62	15.49	0.000036	1.33
2152	100 year	Existing	2096	1.40	15.46	7.60	15.46	0.000012	0.77

2152	100 year	Proposed	2096	1.40	15.47	7.60	15.49	0.000037	1.35
2101	100 year	Existing	2096	1.37	15.46	7.58	15.46	0.00001	0.72
2101	100 year	Proposed	2096	1.37	15.48	7.58	15.48	0.000012	0.76
2046	100 year	Existing	2096	1.35	15.46	7.55	15.46	0.000008	0.65
2046	100 year	Proposed	2096	1.35	15.47	7.55	15.48	0.000011	0.74
1995	100 year	Existing	2096	1.32	15.46	7.52	15.46	0.000007	0.58
1995	100 year	Proposed	2096	1.32	15.47	7.52	15.48	0.00001	0.70
1942	100 year	Existing	2096	1.29	15.46	7.50	15.46	0.000006	0.57
1942	100 year	Proposed	2096	1.29	15.47	7.50	15.48	0.000012	0.76
1889	100 year	Existing	2096	1.27	15.46	7.47	15.46	0.000007	0.58
1889	100 year	Proposed	2096	1.27	15.47	7.47	15.48	0.000011	0.76
1837	100 year	Existing	2096	1.24	15.46	7.45	15.46	0.000006	0.56
1837	100 year	Proposed	2096	1.24	15.47	7.45	15.48	0.000011	0.75
1784	100 year	Existing	2096	1.21	15.46	7.42	15.46	0.000006	0.57
1784	100 year	Proposed	2096	1.21	15.47	7.42	15.48	0.000011	0.77
1729	100 year	Existing	2096	1.19	15.46	7.40	15.46	0.000007	0.58
1729	100 year	Proposed	2096	1.19	15.47	7.40	15.48	0.000013	0.82
1676	100 year	Existing	2096	1.16	15.45	7.37	15.46	0.000007	0.58
1676	100 year	Proposed	2096	1.16	15.47	7.37	15.47	0.000014	0.84
1624	100 year	Existing	2096	1.13	15.45	7.34	15.46	0.000005	0.53
1624	100 year	Proposed	2096	1.13	15.47	7.34	15.47	0.000016	0.89
1572	100 year	Existing	2096	1.11	15.45	7.31	15.46	0.000004	0.46
1572	100 year	Proposed	2096	1.11	15.47	7.31	15.47	0.000016	0.89
1520	100 year	Existing	2096	1.08	15.45	7.28	15.46	0.000003	0.40
1520	100 year	Proposed	2096	1.08	15.46	7.28	15.47	0.000015	0.88
1468	100 year	Existing	2096	1.06	15.45	7.26	15.46	0.000003	0.37
1468	100 year	Proposed	2096	1.06	15.46	7.26	15.47	0.000015	0.88
1412	100 year	Existing	2096	1.03	15.45	7.24	15.46	0.000003	0.37
1412	100 year	Proposed	2096	1.03	15.46	7.24	15.47	0.000016	0.90
1361	100 year	Existing	2096	1.00	15.45	7.21	15.46	0.000003	0.39
1361	100 year	Proposed	2096	1.00	15.46	7.21	15.47	0.000017	0.93
1309	100 year	Existing	2096	0.98	15.45	7.78	15.46	0.000003	0.41
1309	100 year	Proposed	2096	0.98	15.46	7.78	15.47	0.000017	0.94
1255	100 year	Existing	2096	0.95	15.45	8.40	15.46	0.000003	0.41
1255	100 year	Proposed	2096	0.95	15.46	7.76	15.47	0.000018	0.97
1204	100 year	Existing	2096	0.92	15.45	8.19	15.45	0.000005	0.59
1204	100 year	Proposed	2096	0.92	15.46	8.13	15.47	0.000017	1.12
1150	100 year	Existing	2096	0.90	15.45	8.06	15.45	0.000007	0.84
1150	100 year	Proposed	2096	0.90	15.45	8.03	15.47	0.000015	1.25
1097	100 year	Existing	2096	0.87	15.45	7.96	15.45	0.000008	0.90
1097	100 year	Proposed	2096	0.87	15.45	7.95	15.46	0.000014	1.23

1046	100 year	Existing	2096	0.84	15.45	7.92	15.45	0.000007	0.74
1046	100 year	Proposed	2096	0.84	15.45	7.70	15.46	0.000017	1.12
992	100 year	Existing	2096	0.82	15.45	7.88	15.45	0.000006	0.67
992	100 year	Proposed	2096	0.82	15.45	7.88	15.46	0.000016	1.12
940	100 year	Existing	2096	0.79	15.45	7.65	15.45	0.000005	0.59
940	100 year	Proposed	2096	0.79	15.45	7.58	15.46	0.000016	1.07
886	100 year	Existing	2096	0.76	15.45	7.43	15.45	0.000005	0.58
886	100 year	Proposed	2096	0.76	15.45	7.47	15.46	0.000015	1.05
834	100 year	Existing	2096	0.74	15.45	7.28	15.45	0.000005	0.61
834	100 year	Proposed	2096	0.74	15.45	7.33	15.46	0.000014	1.03
780	100 year	Existing	2096	0.71	15.45	7.20	15.45	0.000006	0.64
780	100 year	Proposed	2096	0.71	15.45	7.24	15.46	0.000014	1.02
729	100 year	Existing	2096	0.69	15.45	7.04	15.45	0.000006	0.67
729	100 year	Proposed	2096	0.69	15.45	7.15	15.46	0.000014	1.03
675	100 year	Existing	2096	0.66	15.45	7.07	15.45	0.000008	0.74
675	100 year	Proposed	2096	0.66	15.45	7.02	15.46	0.000015	1.03
622	100 year	Existing	2096	0.63	15.44	7.00	15.45	0.000009	0.84
622	100 year	Proposed	2096	0.63	15.45	7.00	15.46	0.000009	0.83
567	100 year	Existing	2096	0.60	15.44	7.02	15.45	0.000013	0.98
567	100 year	Proposed	2096	0.60	15.45	7.02	15.45	0.000013	0.98
515	100 year	Existing	2096	0.58	15.43	7.03	15.45	0.000015	1.29
515	100 year	Proposed	2096	0.58	15.44	7.03	15.45	0.000015	1.29
461	100 year	Existing	2096	0.55	15.42	6.89	15.45	0.000029	1.46
461	100 year	Proposed	2096	0.55	15.43	6.89	15.45	0.000028	1.46
411	100 year	Existing	2096	0.53	15.40	6.90	15.44	0.000049	1.87
411	100 year	Proposed	2096	0.53	15.41	6.90	15.45	0.000049	1.87
359	100 year	Existing	2096	0.50	15.31	6.71	15.43	0.000096	2.77
359	100 year	Proposed	2096	0.50	15.32	6.71	15.44	0.000096	2.77
304	100 year	Existing	2096	0.47	15.36	5.68	15.4	0.000075	1.63
304	100 year	Proposed	2096	0.47	15.37	5.68	15.41	0.000075	1.63
250	100 year	Existing	2096	0.44	15.37	5.93	15.4	0.000021	1.47
250	100 year	Proposed	2096	0.44	15.37	5.93	15.4	0.00002	1.47
241. UPRR			Bridge	14.20					
232	100 year	Existing	2096	0.43	15.33		15.36	0.00002	1.45
232	100 year	Proposed	2096	0.43	15.33	6.11	15.36	0.00002	1.45
200	100 year	Existing	2096	0.42	15.33	6.10	15.35	0.000046	1.21
200	100 year	Proposed	2096	0.42	15.34	6.10	15.36	0.000046	1.21

Attachment G

Agreements

Exhibit A: Sacramento Light Rail System Operations Agreement No. 84165, dated May 2, 2001

Exhibit B: Operations and Joint Use Agreement between the Sacramento Regional County Sanitation District and the Sacramento Regional Transit District for the South Sacramento Corridor Phase Project Area (unsigned)

Exhibit C: State of California Standard Agreement between Department of Water Resources/The Reclamation Board and the Department of the Army Corps of Engineers for the construction of the South Sacramento County Streams Project, dated May 27, 2005

Exhibit D: Project Cooperation Agreement No. 4600002777 between the Department of the Army, the State of California and the Reclamation Board for the South Sacramento County Streams in California, dated May 20, 2005 (excerpt of agreement only)

Exhibit A

City Clerk's Copy

CERTIFIED AS TRUE COPY
OF City Agreement 84165
May 2, 2001
DATE CERTIFIED
Valerie G. Burrows
CITY CLERK, CITY OF SACRAMENTO

SACRAMENTO LIGHT RAIL SYSTEM OPERATIONS AGREEMENT

This Agreement is made and entered into this 3rd day of April, 1985, by and between the SACRAMENTO REGIONAL TRANSIT DISTRICT, a public corporation, hereinafter referred to as "RT", and THE CITY OF SACRAMENTO, a municipal corporation, hereinafter referred to as "CITY".

WHEREAS, RT, CITY, and the County of Sacramento have entered into a Joint Powers Agreement establishing the Sacramento Transit Development Agency (STDA) as the agency responsible to design and construct a Light Rail Transit System over 18.3 miles in the City and in the County of Sacramento; and

WHEREAS, RT was established under the Sacramento Regional Transit District Act of 1971 (CA. Stats. 1971, ch. 1374, as amended) and activated pursuant to Resolutions of Necessity adopted by CITY and the County of Sacramento in 1972; and

WHEREAS, under its State franchise, RT is empowered with the authority to construct, provide, operate, and cause to be operated a unified public transportation system to meet mass and rapid transit needs in the Sacramento region; and

WHEREAS, RT intends to operate the Light Rail Transit System currently under construction pursuant to contracts let by STDA; and

WHEREAS, RT and CITY desire to enter into an agreement whereby certain aspects pertaining to the operation of the Light Rail System within CITY'S municipal boundaries are addressed prior to the commencement of light rail passenger service;

NOW, THEREFORE, IT IS AGREED:

1. SCOPE OF AGREEMENT

This Agreement sets forth the rights, duties and obligations of RT and CITY arising out of the installation, maintenance, and operation of the Light Rail System, hereinafter referred to as "RT Metro". Both RT and CITY agree that each will fully cooperate and coordinate with the other in all such activities as are covered by this Agreement.

2. OPERATION OF RT METRO SYSTEM

As hereinafter provided, RT shall operate RT Metro within CITY'S municipal boundaries as shown on Exhibit A. All matters directly pertaining to the operation and maintenance of RT Metro not otherwise specifically addressed under the terms of this Agreement, and

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any amendments or supplemental agreements thereto, shall be reserved to and shall be the sole responsibility of RT.

3. CITY'S PERMISSION

CITY hereby grants permission to RT to operate rail system within the City streets in accordance with Exhibit A. RT shall have an encroachment permit for the purpose of operating and maintaining a light rail system. Said encroachment shall be non-exclusive; however, CITY shall not revoke, encumber or otherwise cause a use of the City streets which is incompatible with carrying out the functional requirements of the RT Metro system.

4. MAINTENANCE OF RT METRO

RT shall maintain RT Metro in conformity with requirements for a light rail system mandated by the Public Utilities Commission of the State of California and specifically agrees to maintain all areas, including street paving, between points a distance of two (2) feet from each outside operating rail on City right-of-way in a condition satisfactory to CITY. RT shall be responsible for all maintenance costs which directly result from installation or operation of RT Metro as presently designed or as a result of any future changes in operation, including, but not limited to tracks, underground ducts for traction power feeder lines, track drainage, signs, special signals unique to RT Metro but not normal traffic signals used by all traffic, overhead trolley wire and support system, traction power poles, lighting standards, protective barriers where required, stations, ramps for handicapped patrons, crossing gates, warning devices and other appurtenances necessary to operate a light rail transit system. RT shall maintain and be responsible for landscaping within the RT Metro right-of-way, including the trimming of all trees where growth threatens to encroach upon the power supply lines of the RT Metro system, which trimming shall be authorized through an annual permit granted upon request to RT by the City of Sacramento Park Superintendent. CITY shall maintain landscaping installed by RT outside of the RT right-of-way commencing one year after the original installation of said landscaping. CITY shall continue to maintain and be responsible for normal street lighting along the RT Metro system, but the lighting, other than standard street lighting, on the K Street Mall shall be maintained by RT Metro. Maintenance activities required by CITY pertaining to CITY rights-of-way, utilities, and facilities shall be addressed in a work program as provided under Paragraph 7 of this Agreement.

5. SAFETY EQUIPMENT

RT shall obtain all permits from the Public Utilities Commission and shall pay all costs associated with the maintenance of crossing gates and other warning devices on City streets, including maintenance of overhead electric power and overhead lines in accordance with the regulations of the California Public Utilities Commission. In operating and maintaining RT Metro, RT shall take all actions necessary to provide, install, and maintain at no cost to CITY any

new safety equipment mandated by any state or federal regulatory agency and as required by prudent industry practice.

6. TRAFFIC SIGNAL MODIFICATIONS

City traffic signals may need to be modified to accommodate RT Metro operations. RT shall submit to CITY proposed modifications to traffic signals which shall be subject to CITY approval prior to modification of the system. RT shall provide all software components required for traffic signal modification and shall provide funds to maintain all software components for a period of two years after acceptance by CITY. RT shall pay all costs associated with the modification of traffic signals, where necessary, to accommodate RT Metro's operations, including direct labor of City employees as well as indirect costs in accordance with the standard cost allocation plan maintained by the appropriate City department. RT specifically agrees to furnish all hardware modifications to the CITY'S equipment required by any modifications to traffic signals. CITY shall approve technical and performance specifications for the software components and hardware referred to in this Article prior to bid.

7. ANNUAL WORK PROGRAM AND REIMBURSEMENT OF CITY

A. Concurrent with RT Metro's preparation of its capital budget for the fiscal year commencing after the initiation of RT Metro operations, and for every fiscal year thereafter (but not less than ninety days prior to the commencement of the RT fiscal year), CITY shall submit to RT a proposed work program identifying repair, maintenance or new construction activities to commence during the following RT fiscal year for which CITY will incur additional costs of the nature described in Paragraph B, below. Consistent with said Paragraph B, below, RT and CITY shall mutually agree upon those activities for which additional costs incurred by CITY shall be reimbursed by RT, which shall be formalized and appended to this Agreement as a new Exhibit B for each fiscal year in which such activities are proposed. RT shall submit to CITY at least ninety (90) days prior to the commencement of the RT fiscal year a proposed work program identifying those construction or maintenance activities to commence during the following RT fiscal year for which CITY will incur additional costs of the nature described in Paragraph C, below. Consistent with said Paragraph C, below, RT and CITY shall mutually agree upon those activities for which additional costs incurred by CITY shall be reimbursed by RT, which shall be formalized and appended to this Agreement as a new Exhibit C for each fiscal year in which such activities are proposed. RT shall reimburse CITY within thirty (30) days after receipt of invoice for those costs incurred by CITY to complete those activities identified in Exhibits B and C, respectively, for the applicable fiscal year, provided that the maximum reimbursement therefor shall not exceed the amounts budgeted in Exhibits B and C for the applicable fiscal year.

B. RT shall be responsible for all maintenance costs which directly result from installation or operation of the system as

presently designed or as a result of any future change in operation. Further, whenever the CITY repairs or undertakes new construction, the cost of which is increased because of the light rail system, RT shall pay that portion of the construction and/or repair costs, but only that portion directly attributable to the existence of the light rail system.

C. RT shall be responsible for all costs to CITY of construction or maintenance to the RT Metro system, exclusive of betterments requested by the CITY. Such activities may include but are not limited to modifications, restorations, and realignment to City streets, utilities and facilities, changes to traffic signals, signs, traffic legends, lane markings, drainage and street lighting, and street improvements or turnouts at RT Metro stations, should the weight or size of RT buses or other operational or safety considerations require same.

D. Nothing in this paragraph shall be construed to prohibit in any way either the CITY or RT Metro from undertaking repairs of an emergency nature at any time.

8. EMERGENCY REPAIRS/MAINTENANCE

Repair or maintenance improvements that are required due to an emergency or other exigent circumstance shall be undertaken whenever required to safeguard the public health, safety or welfare. In responding to an emergency or exigent circumstance, should CITY incur additional costs for activities described in Paragraph 7, those costs shall be reimbursed by RT even though not itemized in Exhibit B or C for any fiscal year. In the event that the CITY intentionally severs a power cable line, then the CITY shall reimburse RT for the cost of the repair to said line.

9. DESIGN STANDARDS

The criteria and standards of architecture, engineering, and materials to be employed for the construction, restoration, realignment, or relocation of CITY rights-of-way, utilities, and facilities shall be criteria and standards now or hereafter utilized by CITY which CITY applies to its own projects, unless a different written criteria or standard is adopted for a specific task by the parties and provided that applicable standards and criteria established by the California Public Utilities Commission shall be followed wherever required.

10. REVIEW OF PLANS AND SPECIFICATIONS

All plans and specifications for construction within the CITY'S right-of-way to be performed by RT shall be reviewed by the Director of Public Works for CITY before contracts for said construction improvements are awarded. Any major change of design after bidding shall require the review of the City Director of Public Works and all change orders which directly impact on CITY property or costs shall be similarly reviewed by City Director of Public Works.

11. PERMITS

Upon approval by CITY of the plans and specifications for construction activities to be performed by RT under the terms of this Agreement, CITY shall grant to RT, at no cost to RT, all permits necessary for said construction activities.

12. INSPECTION

All street work shall be done in accordance with CITY procedures and standards. All work in the streets or subject to dedication shall be subject to inspection by the CITY and all inspections which are specifically required by this document or which may be reasonably implied therein as required, shall be carried out and conducted in accordance with CITY policy and standards. CITY shall be compensated for any inspectors or inspections it furnishes under this Agreement, for its direct labor of CITY employees, as well as indirect costs in accordance with the standard cost allocation plan schedule maintained by the appropriate CITY department.

13. CONSTRUCTION IN CITY STREETS

Should RT perform construction in City streets, RT shall install or cause to be installed adequate construction and warning signs and traffic control devices at all areas of construction conducted on or near a City street with the approval of CITY'S Traffic Engineer. RT shall comply with the following where it is accomplishing work in City rights-of-way:

(a) Traffic must be allowed to traverse all streets at all times. RT shall furnish, install, and maintain temporary signs, bridges, barricades, flagmen and other facilities to safeguard adequately the general public and the work, and to provide for the proper routing of vehicular and pedestrian traffic as directed by the Director of Public Works.

(b) All advance warning and traffic delineation shall conform with the State of California Traffic Manual, Chapter 5, Traffic Controls for Highway Construction and Maintenance Operation.

(c) RT agrees to comply with reasonable CITY requirements regarding traffic control and safety lighting where RT is required to make repairs or modifications to RT Metro. Arrangements shall be made between the Director of Public Works and RT to the end that rush-hour traffic and the construction schedule of RT are both accommodated where possible.

(d) RT shall provide access to all driveways and/or alleys at all times except when excavation is in progress and shall take precautions not to entrap vehicles on private property during the progress of the work.

14. BETTERMENT CREDIT

The amount of credit due to RT for betterments requested by CITY will be the additional costs thereof as agreed to by the parties. For purposes of this Paragraph 14, the materials to be used shall constitute a betterment if they exceed the standards required by the CITY for similar City projects. The useful life of the work or materials replaced shall not be a factor in determining betterment. Betterment credits due RT shall be further determined in accordance with the following:

(a) Storm, Sanitary Drains:

Betterment shall occur when there is an increase in capacity of storm and sanitary sewage flows not necessitated or contributed to by the operation or use of RT Metro.

(b) Streets and Sidewalks:

Betterment shall occur when there is an increase in the curb-to-curb width to provide increased width of traveled way that increases capacity; an increased width to provide for a median or widening of a median. But, any improvements to a street or sidewalk within the impact area of RT Metro made to accommodate traffic to or from said system which is directly related to the operation or use of the system shall not be deemed a betterment.

(c) Water Mains:

Betterment shall occur to water mains when the nominal size or capacity is increased.

(d) Traffic Engineering

Betterment shall occur to traffic control and street lighting facilities by upgrading the traffic signal system, signing, pavement marking, and street lighting which results in an improved function, capacity, efficiency, safety, visibility, and durability above that required to accommodate RT Metro. Such upgrading might include, but is not limited to:

1. An increase in the size, number and arrangements of lenses in signalheads;

2. Upgrading of control equipment and detectors and provision of interconnection with adjacent signals, additional signal faces, pedestrian signals, and the provision of additional features such as skip phasing, minor movement or preemption;

3. The provision of thermo plastic materials, delineators, pavement messages, and painting of pavement,

unless replacing or relocating such markings due to RT Metro.

15. BUS LOADING ZONES

CITY shall permit RT bus loading zones at RT Metro stations in the locations mutually agreed upon by CITY and RT.

16. WATER AND SEWER SERVICE

CITY shall permit water service connections at the various RT Metro stations at points of connections mutually agreed upon. RT shall pay established rates for connections and rate usage. RT shall be permitted to connect to and use sanitary and drainage sewage lines in the CITY sewer system at mutually agreed upon locations. RT shall pay all established fees including permit fees, connection fees, and monthly rates. Connection fees for water and sewage lines paid by STDA shall be transferable to RT without additional charge to RT.

17. UNDERGROUND SERVICE ALERT

RT shall become a member of the Underground Service Alert and maintain such membership on a permanent basis.

18. CITY EXPENSES

Wherever in this Agreement RT agrees to reimburse CITY for direct and indirect expenses incurred by CITY to maintain, restore or modify City streets, City utilities and City facilities, and otherwise agreed upon, RT'S responsibility to reimburse CITY shall be for the actual costs of such activity and including all direct and indirect CITY costs in accordance with the standard cost allocation plan schedule maintained by the appropriate City department for City labor, materials, service, equipment and any combination of the foregoing.

19. RETENTION OF RECORDS BY CITY AND RT

CITY shall retain all data and records concerning CITY'S reimbursable costs under this Agreement, for a period of three years from the date of the final billing under any given work program or project. CITY shall permit the authorized representatives to inspect and audit all such data and records at any time within three (3) years of the date of such final billing.

20. INDEMNIFICATION OF CITY

RT shall assume the defense of and indemnify and hold harmless City, its officers, employees and agents, and each and every one of them, from and against all actions, damages, costs, liabilities, claims, losses and expenses of every type and description to which any or all of them may be subjected by reason of or resulting from, directly or indirectly, operation of RT's light rail system, whether

or not caused in part by City's passive negligence, but not including the active or sole negligence of City.

RT further agrees to indemnify and save free and hold harmless the City and its authorized agents, officers and employees against any of the foregoing liabilities and any costs and expenses, including reasonable attorneys' fees incurred by the City on account of any claim therefor, specifically including claims by reason of alleged defects in the engineering services, improvement services, or any other work or services done or provided by RT to City pursuant to this Agreement. It is the intent of the previous sentence of this indemnification that RT and its successors bear all costs, losses and damages which may result from or in any way arise out of the design of the light rail system whether or not within the scope of this Agreement, and whether or not caused in part by City.

21. NOTIFICATION

The parties shall establish procedures to notify the other parties, where appropriate, of any claims or legal actions with respect to any of the matters described in this paragraph. The parties shall cooperate in the defense of legal actions brought by other with respect to matters covered by this Agreement. RT shall approve all claim settlements and shall direct all litigation, including without limitation all pleadings, discovery, motions, trial proceedings, settlement demands, offers, or agreements, and appeals pertaining to those legal actions in which RT is a named defendant and/or has agreed to indemnify CITY. Nothing set forth in this Agreement shall establish a standard of care for, or create any legal rights in, any person not a party to this Agreement.

22. INSURANCE

RT shall maintain in full force and effect during the entire period in which RT operates RT Metro or is engaging in any activity under this Agreement a policy or policies of bodily injury, personal injury and property damage insurance in an amount not less than Ten Million Dollars ($10,000,000.00) single limit per occurrence, providing as additional named insureds thereunder the City of Sacramento, its officers, employees and agents acting within the scope of their duties. Such additional insured coverage shall go toward performance by RT of its indemnity provisions set forth in Paragraph 20, above. The policy shall stipulate that this insurance will operate as primary insurance, and that no other insurance carried by City will be called upon to contribute to a loss covered by the indemnification provision set forth above. Said policy shall provide that the policy shall not be cancelled or materially changed without sixty (60) days' written notice thereof to the City's Director of Public Works. Copies of the policy shall be furnished to the City's Director of Public Works prior to the operational testing of RT Metro. The parties agree to review the insurance coverage three (3) years after its inception and every three (3) years thereafter, and, if appropriate, to increase the coverage in an amount to be mutually agreed upon, consistent with the prudent practice for insuring against the risk of the nature associated with operating a light rail system.

23. THIRD PARTY CONTRACTS AND FEDERAL GRANT FUNDS

In the event that CITY, acting as RT Metro's agent in the construction or modification of RT Metro facilities to be funded by RT without federal funds, contracts with a third party to perform such work, the CITY shall follow the competitive bidding requirements set forth in the Public Contract Code Section 20321, and Public Utilities Code Section 102222. In the event RT determines that it is possible to receive reimbursement from a federal agency for work that CITY may do as RT Metro's agent in the construction or modification of RT Metro facilities, then the CITY shall comply with any requirements such federal agency may have to insure that RT receives reimbursement from such agency. But RT'S duty to pay CITY shall not be contingent upon RT obtaining said reimbursement, unless RT'S failure to obtain reimbursement results directly and solely from CITY'S failure to make a good faith effort to comply with any and all federal requirements.

24. NO IMPLIED DUTIES

Nothing contained in this Agreement shall cause RT to be required to maintain staff and duty beyond normal operating hours or CITY to be required to report to RT Metro problems that occur after the normal CITY operating hours, nor shall CITY be required to operate or maintain RT facilities in any instance.

25. CITY BILLINGS

CITY billings to RT pursuant to the work program adopted for a fiscal year shall be prepared in triplicate, shall bear the task item number identified in the work program, and shall be addressed to the Controller of RT. Such billings shall be itemized and shall otherwise comply with standard invoicing procedures specified by RT. Each CITY billing shall be noted as either partial or final. The final CITY billing for a particular work program task shall be submitted to RT no later than ninety (90) days following completion of said work and shall contain a notation that all work covered thereby has been performed. Within thirty (30) days after receipt, RT shall pay each billing as presented.

26. NO DESIGN ROLE BY CITY

The CITY has no responsibility for design for any part, component, or the whole of RT Metro. Design of RT Metro is the sole responsibility of STDA and RT Metro. No act permitted, authorized or required to be performed by CITY under this Agreement, including but not limited to approvals, selections, inspections, or direct labor, shall be construed to be design work by CITY.

27. NO JOINT VENTURE

This Agreement shall not create among the parties a joint venture, partnership, or any other relationship of association.

OPERATIONS AND JOINT USE AGREEMENT BETWEEN THE SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT AND THE SACRAMENTO REGIONAL TRANSIT DISTRICT FOR THE SOUTH SACRAMENTO CORRIDOR PHASE 2 PROJECT AREA SSCP2

This Operations and Joint Use Agreement for the South Sacramento Corridor Phase 2 Project Area (hereinafter "Agreement") is made and entered into this _____ day of _____, 2012 ("Effective Date"), by and between the SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT, a county sanitation district formed pursuant to and operating under the authority of the County Sanitation District Act, commencing at Health and Safety Code section 4700, (hereinafter "SRCSD") and the SACRAMENTO REGIONAL TRANSIT DISTRICT, a public corporation of the State of California, (hereinafter "RT").

RECITALS

WHEREAS, RT proposes to extend its Light Rail system from its existing terminus at Meadowview Road to Cosumnes River College as part of the South Sacramento Corridor Phase 2 (SSCP2) project; the proposed extension will begin at RT's Meadowview Road terminus and head south parallel to the Union Pacific Railroad tracks, then head east through the SRCSD Bufferlands property, and continue east parallel to Cosumnes River Boulevard, and then turn south along Bruceville Road into Cosumnes River College;

WHEREAS, RT is entitled to construct and operate public transit facilities in and across public streets (Public Utilities Code § 102283), subject to issuance of required encroachment permits through the City of Sacramento (Public Utilities Code § 102288); and

WHEREAS, the proposed SSCP2 project is a double-track rail project which includes four stations, and two flyover structures; and

WHEREAS, SRCSD owns and operates a number of sewage conveyance systems with associated pipelines, manholes, structures, and appurtenances, in the vicinity of the proposed SSCP2 project. These facilities occasionally require maintenance, and less frequently require emergency repairs; and

WHEREAS, the proposed SSCP2 improvements will be located in close proximity to, cross over, and/or reside on top of existing facilities owned and operated by SRCSD, including but not limited to the Bradshaw and Central Interceptors and their associated pipelines, manholes, structures, access roads, and appurtenances; and

WHEREAS, the areas of interest hereinafter will be identified as Areas "A" and "B", as more particularly shown in Exhibit "1" attached hereto and incorporated herein by this reference. Area "A" is that portion of the SSCP2 project located within the SRCSD Bufferlands property; located west of the intersection of Franklin Boulevard and Cosumnes River Boulevard. Area "A" can be further divided into Sub-Areas "A1" and "A2", as more particularly shown on Exhibit "2", attached hereto and incorporated herein by this reference. Sub-Area "A1" is that portion of Area "A" that is being purchased by RT in fee title from SRCSD with reservation of easements to SRCSD. Sub-Area "A2" is that remaining portion of Area A that is being purchased by RT in permanent easement from SRCSD. Area "B" is that area of the SSCP2 project alignment located east of the intersection of Franklin Boulevard and Cosumnes River Boulevard and west of the intersection of Bruceville Road and Cosumnes River Boulevard, which is more particularly shown in Exhibits "3" thru "6", attached hereto and incorporated herein by this reference.

WHEREAS, SRCSD has existing sewer easements within Area "B" that predate this agreement and easements that will be acquired by RT for the SSCP2; and

WHEREAS, the installation of the SSCP2 improvements may impact SRCSD's ability to access, operate and maintain its facilities as the proposed installations are in close proximity to, cross over and/or reside on top of SRCSD's existing facilities; and

WHEREAS, the parties acknowledge that while the installation of the proposed RT facilities within SRCSD's existing easement areas was not a use contemplated at the time of SRCSD's acquisition of its easement rights, SRCSD is willing to allow RT to use and install the proposed SSCP2 facilities based on the terms of this agreement; and

WHEREAS, RT will acquire the necessary fee title and easements on SRCSD's property after this operating agreement has been executed and recorded; and

WHEREAS, SRCSD and RT agree to reserve easements for the existing SRCSD facilities located in Area "A"; and

WHEREAS, SRCSD and RT wish to enter into a cooperative agreement to allow for coordination of routine and emergency maintenance activities by both SRCSD and RT and to establish roles and responsibilities for long-term protection and maintenance of SRCSD and RT facilities for all post construction activities; and

WHEREAS, all coordination and access activities during the construction of the SSCP2 will be addressed through Permits to Enter (PTEs)/Rights of Entry (ROEs), Temporary Construction Easements, and SRCSD Access Requests.

NOW, THEREFORE, in consideration of the mutual promises hereinafter set forth, RT and SRCSD agree as follows:

ARTICLE 1
RIGHTS AND DUTIES OF THE PARTIES

1.01 Notification. Each party will provide timely notice to the other prior to any work being performed on their respective facilities, as described below.

1.01.1 Non-Emergency Situations. RT and SRCSD will notice the other in writing a minimum of ten (10) business days prior to commencement of any non-emergency work activities within Areas "A" and "B". Said written notice must be delivered to the addresses identified in Section 4.01. RT and SRCSD will notice the other via telephone immediately prior to performing any at grade or above grade routine work activities within Areas "A" and "B".

1.01.2 Non-Emergency Situations Requiring Work Activities within 10 ft of the RT Light Rail Tracks. A Track Warrant is required for any work activities that are located ten (10) feet or less from the edge of the RT tracks or any instances which require the crossing of RT tracks. SRCSD will submit a Track Warrant (please see Exhibit **"7"**, attached hereto and incorporated herein) to RT a minimum of ten (10) business days prior to commencement of any work activities that are located ten (10) feet or less from the edge of the RT tracks or any instances which require the crossing of RT tracks. RT may require that a look-out be present during the work activity for safety reasons. RT will determine if a look-out is required during review of the Track Warrant.. Within 24 hours during the normal business day RT will review the Track Warrant and either issue the Track Warrant to SRCSD or request additional information from SRCSD. If it is determined that a look-out is required SRCSD will coordinate with RT to schedule a look-out by sending an e-mail request to LookoutRequest@sacrt.com after the Track Warrant has been issued. RT will respond to SRCSD's request for a look-out within 24 hours during the normal business day.

RT must not deny SRCSD any reasonable request for a track warrant under this Agreement. RT will make every effort to issue the Track Warrant in a timely manner and will not unreasonably preclude or delay SRCSD from accessing, maintaining or performing work on its facilities. Track Warrants requested by SRCSD, or requested as part of any project to construct or repair SRCSD facilities must be granted at no cost to SRCSD (including design review, inspection, and other enforcement costs incurred by RT).

1.01.3 Non-Emergency Situations requiring shutdown of RT's Traction Power. A Red Tag Permit is required for any work activities that require a shutdown of RT's traction power. Any work activities whose equipment is capable of coming within 10 ft of RT's overhead contact system (OCS) would also require a Red Tag Permit as RT would need to shutdown its

traction power. SRCSD will submit a Red Tag Permit (please see Exhibit "8", attached hereto and incorporated herein) to RT a minimum of ten (10) business days prior to commencement of any work activities which require shutdown of RT's traction power. SRCSD must schedule a Red Tag by sending an email request to redtag@sacrt.com. The email request must include the name of the applicant, location and duration of the work, and an anticipated length of time that the Red Tag will be needed. Red Tag request(s) will only be considered during non-revenue hours unless provisions are made by RT for a bus bridge to operate through the duration of the Red Tag. Except in the event of an emergency, Red Tags will not be provided during peak hours. Peak hours are Monday through Friday, 6:00 am to 9:00 am and 3:30 pm to 6:00 pm. RT will review the request for a Red Tag Permit and will either issue the Red Tag Permit to SRCSD or, within five (5) business days, request additional information from SRCSD.

RT will make every effort to issue the Red Tag Permit in a timely manner and will not unreasonably delay SRCSD from accessing, maintaining, or performing work activities on its facilities. The Red Tag Permit will be issued to SRCSD at no cost.

To cancel a scheduled Red Tag, SRCSD must send an email no later than 4 p.m. the evening before the date of the scheduled Red Tag.

1.01.4 Emergency Situations. In the event of an emergency SRCSD and RT must notice the other as soon as practicable via telephone at the numbers listed in Section 4.01. Such telephone notice must be confirmed by the noticing party through an e-mail to the other party to the email addresses identified in Section 4.01 as soon as practicable.

Track Warrants and Red Tag Permits are not required for emergencies or other exigent circumstances, but SRCSD must notify RT as soon as practicable when working to resolve the emergency or exigent situation to allow RT to notify the light rail operations staff for safety reasons. SRCSD will not enter the area until RT has confirmed that RT's staff has been notified and safety procedures have been identified and are in place. The parties will inform each other immediately if a shutdown of the other party's facilities is required in order to perform emergency work.

If shutdown of RT facilities is required in order for SRCSD to perform work, SRCSD will inform RT as soon as SRCSD becomes aware of the situation via telephone at the numbers listed in section 4.01, and as soon as practicable via e-mail. As both SRCSD and RT staff may be gaining information regarding the situation as it becomes available there may be delay in relaying the information to one another; however both parties must inform the other party of the situation as soon as practicable. Prior to

gaining access to perform the emergency work, SRCSD will allow RT to clear the system and/or shut down the power in the vicinity of the work.

1.02 Gate Structure Access.

1.02.1 Franklin Gate Structure. RT acknowledges that SRCSD has an existing gate structure located within the footprint of the Franklin Park and Ride station. This facility is located in the parking lot area. The parties have agreed that access will be gained through a corridor shared with RT buses. SRCSD will work with RT, its contractors or subcontractors, to coordinate planned installation/removal of gate from this structure, and RT must provide SRCSD unobstructed access to this site as depicted in Exhibit "9" or as mutually agreed to by both parties.

1.02.2 Center Parkway Gate Structure. RT acknowledges that SRCSD has an existing gate structure along with a manhole located in the proposed Center Parkway Light Rail Station. This facility is located between the proposed station platform and the intersection of Center Parkway and Cosumnes River Boulevard. The parties have agreed that access will be gained by driving across the sidewalk located on the north side of Cosumnes River Boulevard. SRCSD will work with RT, its contractors or subcontractors, to coordinate planned installation/removal of gate from this structure or access to the manhole, and RT must provide SRCSD unobstructed access to this site as depicted in Exhibit "10" or as mutually agreed to by both parties. RT must ensure that pedestrians do not gain access to this area during SRCSD's mobilization and de-mobilization of the work area. SRCSD must provide safe pedestrian access to the station during maintenance of its gate or manhole; and RT will promptly reimburse SRCSD for its costs in providing said safe pedestrian access.

1.03 Fencing Requirements in Area "A". RT will install and maintain a barbed wire fence and signs that will serve as a boundary around Area "A" adjacent to the SRCSD Bufferlands property to sufficiently prevent livestock from entering onto Area "A", to prevent trespass onto the SRCSD Bufferlands, and to separate Area "A" from the remainder of the secured Sacramento Regional Wastewater Treatment Plant (SRWTP) Facility. The details and specifications for the barbed wire fence and signs must be reviewed and approved by SRCSD. It is anticipated that this fence will serve as a temporary fence and will remain in place around Area "A" until such time as the City of Sacramento completes its planned Cosumnes River Boulevard (CRB) Extension Project, which includes a permanent fence to separate the future CRB right-of-way from the SRCSD Bufferlands property. Once the CRB project is complete and the permanent fence is in place SRCSD will provide RT notice to remove the temporary fence. RT will be responsible for all maintenance, replacement and upkeep of the temporary fence until the permanent fence is in place, and RT has received notice from SRCSD to remove the temporary fence. If the CRB Extension Project does not go forward, RT will be responsible for the

perpetual maintenance, replacement and upkeep of SRCSD approved permanent fencing to separate the Bufferlands property from RT's right-of-way.

1.04 RT Facilities within SRCSD Easements by Grant, Subdivision Map, or Reservation.

1.04.1 Removal of SSCP2 Infrastructure or Improvements within SRCSD Easements for SRCSD Work. Portions of the SSCP2 infrastructure and improvements may need to be removed in order for SRCSD to access its existing facilities, or perform certain work activities within its easements. SRCSD will attempt to minimize impacts to RT's facilities. SRCSD will provide RT with written notice a minimum of six (6) months in advance of any non-emergency access or work activities which SRCSD believes may require the removal of SSCP2 infrastructure or improvements. RT will be responsible for removing its infrastructure and/or improvements within the SRCSD easements within a mutually agreeable timeframe. SRCSD will not be liable for any portion of the cost for removal or replacement of the RT infrastructure or improvements within the SRCSD easements. If SRCSD must remove RT's infrastructure or improvements, RT will reimburse SRCSD for any costs associated with removal of the SSCP2 project infrastructure or improvements within the SRCSD easements. For emergency situations, SRCSD will contact RT's operations center at the phone numbers listed in Section 4.01 as soon as practicable to request that RT remove and relocate its SSCP2 infrastructure or improvements to accommodate SRCSD's required repair work. SRCSD will coordinate with RT throughout the removal process, and will endeavor to minimize impacts to RT. RT may also propose alternatives to the SRCSD removal approach that minimize or eliminate impacts to RT facilities. If an alternative proposed by RT is acceptable to SRCSD, then the alternative will be implemented and RT shall be responsible for reimbursing SRCSD the difference in cost between the original SRCSD removal approach and the implemented alternative. RT will promptly reimburse SRCSD for these costs within 30 days of submission of invoices by SRCSD.

1.04.2 Shut Down of RT Facilities/Operations. RT may be required to temporarily shut down or stop operations in order for SRCSD to safely and properly perform certain work activities on existing SRCSD facilities. SRCSD will provide RT with a written notice a minimum of six (6) months prior to commencing any non-emergency work activities when it reasonably believes that RT facilities or operations will need to be shut down by SRCSD's work activities. SRCSD will coordinate with RT to minimize impacts to RT operations as much as practicable to still allow SRCSD to perform its required work activities. In the event of an emergency SRCSD will provide RT notice as soon as practicable and will coordinate with RT to minimize impacts to RT as much as is practicable to still allow SRCSD to perform its required work activities. SRCSD will not compensate RT for any costs incurred as a result of the shut down of RT facilities and

operations; all costs for shut down of RT facilities and operations will be borne by RT at its sole cost. If necessary, RT will provide RT riders with a contingency means of transportation. Prior to gaining access to perform the emergency work, SRCSD must allow RT to clear the system and/or shutdown the power in the vicinity of the work. SRCSD will attempt to minimize disruption or impacts to RT facilities and operations. RT may also propose alternatives to the SRCSD work plan that minimize or eliminate disruption or impacts to RT facilities and operations. If an alternative proposed by RT is acceptable to SRCSD, then the alternative will be implemented and RT will be responsible for reimbursing SRCSD the difference in cost between the original SRCSD work plan and the implemented alternative, in those instances where the affected RT facility is present pursuant to an easement, license or encroachment permit. In such instances, RT will reimburse SRCSD for these costs within 30 days of submission of invoices by SRCSD.

1.05 Trash Removal Responsibilities. RT will at its sole cost and expense be the responsible party for trash removal within Area "A1" (the area that RT purchases from SRCSD in fee title).

1.06 Limitation on Permitted Vegetation. RT must not install or plant any vegetation including plants, shrubs or trees within the easement area(s) granted to RT by SRCSD for the SSCP2 project that has been deemed a protected species under any local, state or federal regulation, code or statute.

ARTICLE 2
TERM

2.01 Commencement Date. The duties and obligations of this Agreement will commence on the Effective Date.

2.02 Termination Date. The duties and obligations of the Agreement will terminate upon the happening of either event:

(i). All of the RT and SRCSD facilities subject to this Agreement have ceased to operate and are declared abandoned; or

(ii). By mutual written agreement of both parties.

ARTICLE 3
INDEMNIFICATION AND ENVIRONMENTAL FINES AND PENALTIES

3.01 Indemnification by SRCSD. SRCSD shall defend, indemnify and hold harmless RT, its Board, officers, directors, agents, employees and volunteers from and against all demands, claims, actions, liabilities, losses, damages, and costs, including reasonable attorneys' fees, arising out of or resulting from the

performance of the Agreement, caused in whole or in part by the negligent or intentional acts or omissions of SRCSD, its Board of Directors, officers, directors, agents, employees, consultants, contractors, subcontractors, volunteers or invitees.

3.02 **Indemnification by RT.** RT shall defend, indemnify, and hold harmless SRCSD, its Board of Directors, officers, directors, agents, employees, volunteers and invitees from and against all demands, claims, actions, liabilities, losses, damages and costs, including reasonable attorneys' fees, arising out of or resulting from the performance of the Agreement, caused in whole or in part by the negligent or intentional acts or omissions of RT, its Board of Directors, officers, directors, agents, employees, consultants, contractors, subcontractors, invitees or volunteers.

3.03 **Comparative Fault.** It is the intention of SRCSD and RT that the provisions of this Article 3 be interpreted to impose on each party responsibility to the other for the acts and omissions of their respective officers, directors, agents, employees, invitees, volunteers, Board of Directors, RT Council, consultants, contractors, and subcontractors. It is also the intention of SRCSD and RT that, where fault is determined to have been contributory, principles of comparative fault will be followed and each party shall bear the proportionate cost of any damage attributable to the fault of that party, its officers, directors, agents, employees, invitees, volunteers, Board of Directors, RT Council, consultants, contractors, subcontractors, and invitees.

3.04 **Environmental Fines and Penalties.** RT shall assume responsibility for and payment of any fines or penalties levied on either the SRCSD or RT by any local, state or federal authority (hereinafter Authority) for breaches of the Authority's environmental regulations resulting from RT's use of the areas required for RT's operations subject to this Agreement. RT agrees to be liable for the payment of all fines and penalties except and in proportion to the extent caused by the negligence or willful misconduct of SRCSD.

SRCSD shall assume responsibility for and payment of any fines or penalties levied on either RT or SRCSD by an Authority for breaches of the Authority's environmental regulations resulting from SRCSD's use of the areas required for SRCSD operations subject to this Agreement. SRCSD agrees to be liable for the payment of all fines and penalties except and in proportion to the extent caused by the negligence or willful misconduct of RT.

In addition, the parties understand and acknowledge that the environmental regulations implemented or imposed by the Authority on the SRCSD and RT may change and each party specifically agrees to comply with any future environmental regulations implemented or imposed by the Authority on the SRCSD or RT.

ARTICLE 4
GENERAL

4.01 Notice. Any notice required to be given hereunder, or which either party may wish to give, shall be given to the other party using the contact information provided below; or to such other place as either party may designate in writing. Written notice required by this Agreement may be satisfied by facsimile, electronic mail, personal delivery, or first class mail to the other parties' named agent or designee. Telephone notice shall be to the other parties' named agent or designee.

SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT

Sacramento Regional County Sanitation District
Operations and Maintenance Support - Capital Improvement Program
Attn: Senior Civil Engineer
8521 Laguna Station Road
Elk Grove, CA 95758-9550
(916) 875-9000 (business hours 7 am - 4:30 pm)
(916) 875-9400 (after hours Plant Control Center)
Email Notification shall be sent to both of the emails below:
SRTWP Interceptor O&M group - srwtpinto&m@sacsewer.com
SRWTP PCC Supervisors - srwtppccsup@sacsewer.com
with copies to:

Sacramento Regional County Sanitation District
Attn: Senior Civil Engineer, SRCSD Development Services
10060 Goethe Road
Sacramento, CA 95827

Sacramento Regional County Sanitation District
Attn: Real Estate Program Manager for Special Districts
10060 Goethe Road
Sacramento, CA 95827

For Emergencies:

Please use the SRCSD contact information above.

SACRAMENTO REGIONAL TRANSIT DISTRICT

Sacramento Regional Transit District
Attn: Director, Civil & Track Design
2811 O Street
Sacramento, CA 95816
Phone: (916) 321-3876 (business hours 8 am - 5 pm)
Phone: (916) 648-8415 (after hours Central Control)

with a copy to:

Director, Project Management
Sacramento Regional Transit District
PO Box 2110
Sacramento, CA 95812
Phone: (916) 321-3854
Facsimile: (916) 454-6016

For Emergencies:

RT Metro Control
Phone: (916) 648-8415

With a follow-up e-mail to:

RT Director, Civil & Track Design

LookoutRequest@sacrt.com

4.02 Amendments. Modifications or amendments to the terms of this Agreement must be in writing and executed by both parties.

4.03 Successors and Assigns. This Agreement will bind the successors and assigns of SRCSD and RT in the same manner as if they were expressly named. Waiver by either party of any default, breach or condition precedent must not be construed as a waiver of any other default, breach or condition precedent or any other right hereunder.

4.04 Interpretation and Enforcement. Interpretation and enforcement of this Agreement will be governed by the laws of the State of California.

4.05 Complete Agreement. This Agreement represents the entire understanding of RT and SRCSD as to those matters contained herein. No prior oral or written understanding will be of any force or effect with respect to those matters covered hereunder. This Agreement may only be modified by amendment in writing signed by each party.

4.06 Survivorship. The responsibility for indemnification will not be invalidated due to the termination of this Agreement. Termination of this Agreement will not affect the parties' respective responsibilities for payment of costs incurred prior to the effective date of termination.

4.07 Construction. Headings at the beginning of each paragraph and subparagraph are solely for the convenience of the parties and are not a part of the Agreement. Whenever required by the context of this Agreement, the singular shall include the plural and the masculine shall include the feminine and vice versa. It is agreed and acknowledged by the parties hereto that the provisions of this Agreement have been arrived at through negotiation, and that each of the parties has had a full and fair

opportunity to revise the provisions of this Agreement and to have such provisions reviewed by legal counsel. Therefore, the normal rule of construction that any ambiguities are to be resolved against the drafting party shall not apply in construing or interpreting this Agreement. All exhibits referred to in this Agreement are attached and incorporated by this reference.

(Signature page follows.)

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first written above.

SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT, a county sanitation district pursuant to and operating under the authority of the County Sanitation District Act, commencing at Health and Safety Code section 4700

By: _____
Stan Dean,
District Engineer

Date: _____

Signed under the authority delegated to the District Engineer by:

Resolution No. _____

Dated: _____

REVIEWED AND APPROVED AS TO FORM

By: _____
Stephanie G. Percival,
Deputy County Counsel,
Counsel for SRCSD

Date: _____

SACRAMENTO REGIONAL TRANSIT DISTRICT, a public corporation of the State of California

By: _____
Michael R. Wiley,
General Manager/CEO

Date: _____

Approved as to Content:

By: _____
Diane Nakano,
AGM of Engineering and Construction

Date: _____

REVIEWED AND APPROVED AS TO FORM

By: _____
RT Counsel

Date: _____

Exhibit C

STATE OF CALIFORNIA
STANDARD AGREEMENT
STD 213 (Rev 06/03)

AGREEMENT NUMBER
4600002777
REGISTRATION NUMBER

RECEIVED
MAY 27 2005
CERS

1. This Agreement is entered into between the State Agency and the Contractor named below:

STATE AGENCY'S NAME
Department of Water Resources/The Reclamation Board

CONTRACTOR'S NAME
The Department of the Army Corps of Engineers

2. The term of this Agreement is: February 15, 2005 through Notice of completion
This Agreement shall not become effective until approved by the Department of General Services.

3. The maximum amount of this Agreement is: $ 93,692,000.00
Ninety three million and six-ninety two thousand dollars and no cents.

4. The parties agree to comply with the terms and conditions of the following exhibits which are by this reference made a part of the Agreement.

See Project Cooperation Agreement Between the State of California The Reclamation Board for construction of the South Sacramento County Streams Project, CA, San Joaquin River Basin, Flood Control Project, which is attached and made a part of this Agreement by this reference.

Signatures appear on page 34 of the Agreement.

'N WITNESS WHEREOF, this Agreement has been executed by the parties hereto.

CONTRACTOR

CONTRACTOR'S NAME *(if other than an individual, state whether a corporation, partnership, etc.)*

BY *(Authorized Signature)* | DATE SIGNED *(Do not type)*

PRINTED NAME AND TITLE OF PERSON SIGNING

ADDRESS

STATE OF CALIFORNIA

AGENCY NAME

BY *(Authorized Signature)* | DATE SIGNED *(Do not type)*

PRINTED NAME AND TITLE OF PERSON SIGNING

ADDRESS

California Department of General Services Use Only

APPROVED
MAY 13 2005
DEPT OF GENERAL SERVICES

PROJECT COOPERATION AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE STATE OF CALIFORNIA, THE RECLAMATION BOARD
FOR CONSTRUCTION OF THE
SOUTH SACRAMENTO COUNTY STREAMS, CA,
SAN JOAQUIN RIVER BASIN, FLOOD CONTROL PROJECT

THIS AGREEMENT is entered into this 20th day of May, 2005, by and between the DEPARTMENT OF THE ARMY (hereinafter the "Government"), represented by the U.S. Army Engineer for Sacramento District, and the STATE OF CALIFORNIA, represented by the President of THE RECLAMATION BOARD (hereinafter the "Non-Federal Sponsor").

WITNESSETH, THAT:

WHEREAS, construction of the San Joaquin River Basin, South Sacramento County Streams project in Sacramento County, California was authorized by Section 101(a)(8) of the Water Resources Development Act of 1999 (Public Law 106-53).

WHEREAS, the Government and the Non-Federal Sponsor desire to enter into a Project Cooperation Agreement for construction of the flood control portion only of the San Joaquin River Basin, South Sacramento County Streams project (hereinafter the "Project", as defined in Article I.A. of this Agreement);

WHEREAS, Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, specifies the cost-sharing requirements applicable to the Project;

WHEREAS, Section 221 of the Flood Control Act of 1970, Public Law 91-611, as amended, and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, provide that the Secretary of the Army shall not commence construction of any water resources project, or separable element thereof, until the Non-Federal Sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

WHEREAS, Section 104 of the Water Resources Development Act of 1986, Public Law 99-662 authorizes the Assistant Secretary of the Army (Civil Works) to afford a credit for work accomplished by the Non-Federal Sponsor;

WHEREAS, the Non-Federal Sponsor does not qualify for a reduction of the maximum non-Federal cost share pursuant to the guidelines that implement Section 103(m) of the Water Resources Development Act of 1986, Public Law 99-662, as amended;

WHEREAS, Section 902 of Public Law 99-662 establishes the maximum amount of costs for the South Sacramento County Streams project for flood control, environmental restoration and recreation, and sets forth procedures for adjusting such maximum amount; and

WHEREAS, the Government and Non-Federal Sponsor have the full authority and capability to perform as hereinafter set forth and intend to cooperate in cost-sharing and financing of the construction of the Project in accordance with the terms of this Agreement.

NOW, THEREFORE, the Government and the Non-Federal Sponsor agree as follows:

ARTICLE I - DEFINITIONS AND GENERAL PROVISIONS

For purposes of this Agreement:

A. The term "Project" shall mean providing flood damage reduction to the Morrison Creek stream group and Beach-Stone lakes drainage basins in Sacramento County, CA. The project includes raising and extending the ring levee around the Sacramento Regional Wastewater Treatment Plant; raising the North Beach Lake levee; strengthening and raising levees or floodwalls on Morrison Creek and its major tributaries, Elder, Florin, and Unionhouse Creeks; modifying channels to increase capacity; retrofitting 17 bridges and removing one bridge; and associated environmental mitigation as generally described in the San Joaquin River Basin, South

Sacramento County Streams Final Feasibility Report with Appendices, dated March 1998, and Addendum to Final Feasibility Report dated September 1998, and approved by Chief of Engineers on 6 October, 1998 and the Limited Reevaluation Report approved by the Division Commander on 10 February 2005. The Project includes the Section 104 work described in Article I.K. of this Agreement.

B. The term "total project costs" shall mean all costs incurred by the Non-Federal Sponsor and the Government in accordance with the terms of this Agreement directly related to construction of the Project. Subject to the provisions of this Agreement, the term shall include, but is not necessarily limited to: continuing planning and engineering costs incurred after October 1, 1985; advanced engineering and design costs; preconstruction engineering and design costs; engineering and design costs during construction; the costs of investigations to identify the existence and extent of hazardous substances in accordance with Article XV.A. of this Agreement; costs of historic preservation activities in accordance with Article XVIII.A. of this Agreement; actual construction costs, including the costs of alteration, lowering, raising, or replacement and attendant removal of existing railroad bridges and approaches thereto; the credit amount for the Section 104 work performed by the Non-Federal Sponsor afforded in accordance with Article II.D.5. of this Agreement, supervision and administration costs; costs of participation in the Project Coordination Team in accordance with Article V of this Agreement; costs of contract dispute settlements or awards; the value of lands, easements, rights-of-way, relocations, and suitable borrow and dredged or excavated material disposal areas for which the Government affords credit in accordance with Article IV of this Agreement; and costs of audit in accordance with Article X of this Agreement. The term does not include any costs for operation, maintenance, repair, replacement, or rehabilitation; any costs due to betterments; or any costs of dispute resolution under Article VII of this Agreement.

C. The term "financial obligation for construction" shall mean a financial

obligation of the Government, a financial obligation of the Non-Federal Sponsor for Section 104 work, and work other than an obligation pertaining to the provision of lands, easements, rights-of-way, relocations, and borrow and dredged or excavated material disposal areas, that results or would result in a cost that is or would be included in total project costs.

D. The term "non-Federal proportionate share" shall mean the ratio of the Non-Federal Sponsor's total cash contribution required in accordance with Articles II.D.1. and II.D.3. of this Agreement to total financial obligations for construction, as projected by the Government.

E. The term "period of construction" shall mean the time from the date the Government first notifies the Non-Federal Sponsor in writing, in accordance with Article VI.B. of this Agreement, of the scheduled date for issuance of the solicitation for the first construction contract to the date that the U.S. Army Engineer for the Sacramento District (hereinafter the "District Engineer") notifies the Non-Federal Sponsor in writing of the Government's determination that construction of the Project is complete.

F. The term "highway" shall mean any public highway, roadway, street, or way, including any bridge thereof.

G. The term "relocation" shall mean providing a functionally equivalent facility to the owner of an existing utility, cemetery, highway or other public facility, or railroad (excluding existing railroad bridges and approaches thereto) when such action is authorized in accordance with applicable legal principles of just compensation or as otherwise provided in the authorizing legislation for the Project or any report referenced therein. Providing a functionally equivalent facility may take the form of alteration, lowering, raising, or replacement and attendant removal of the affected facility or part thereof.

H. The term "fiscal year" shall mean one fiscal year of the Government. The Government fiscal year begins on October 1 and ends on September 30.

Attachment H

Full funding Grant Agreement, Regional Transit, dated May 8, 2012

Regional Transit

Sacramento Regional Transit District
A Public Transit Agency
and Equal Opportunity Employer

Mailing Address:
P.O. Box 2110
Sacramento, CA 95812-2110

Administrative Office:
1400 29th Street
Sacramento, CA 95816
(916) 321-2800
(29th St. Light Rail Station/
Bus 36,38,50E,67,68)

Light Rail Office:
2700 Academy Way
Sacramento, CA 95815
(916) 648-8400

Human Resources Office:
Employee Relations Office:
2830 G Street, 2nd Floor
Sacramento, CA 95816
(916) 321-3800
(Bus 30,31,34,67,68)

Public Transit Since 1973

www.sacrt.com

May 8, 2012

Mr. David R. Williams R.C.E.
Central Valley Flood Protection Board
Chief Levee Improvement Section
3310 El Camino Ave., Room 151
Sacramento, CA 95821

RE: South Sacramento Corridor Phase 2 Project (SSCP2):
CVFPB Permit Request
File: 410

Dear Mr. Williams:

Sacramento Regional Transit District (RT) recently completed Preliminary Engineering on the South Sacramento Corridor Phase 2 (SSCP2) light rail extension and expects Final Design of this extension to take less than two months to complete. Working closely with the Federal Transit Administration (FTA), RT has reached the point in which it will apply for a Full Funding Grant Agreement (FFGA), which secures the Federal funding for the project and allows the work to advance into the construction stage.

FTA guidelines require that all necessary permits be secured prior to submitting the FFGA request. RT expects to submit this request to FTA in June 2012. Because of this, the Central Valley Flood Protection Board Encroachment permit must receive approval at the May 2012 Board meeting. Failure to approve this permit in May will likely result in a delay to the FFGA permit and an ultimate delay in constructing this $270 million extension.

We understand there are design concerns that need to be addressed on the Deer Lake pedestrian bridge and plan to remove this structure from the permit in order to get the rest of the project permitted. Once the design concerns are resolved, RT will submit a separate permit application for the Deer Lake pedestrian bridge under file number 18166-3.

RT appreciates the assistance we have received from the Central Valley Flood Protection Board and hope that our efforts working with your staff will result in getting this permit approved by your Board in May 2012. If you have any questions or concerns, please do not hesitate to contact me at (916) 321-3854.

Sincerely,

Ed Scofield

Ed Scofield, PMP
Director, Project Management

c: Darryl Abansado, RT