

**Meeting of the Central Valley Flood Protection Board
May 26, 2011**

Staff Report

**West Sacramento Area Flood Control Agency (WSAFCA)
West Sacramento Levee Improvement Program
California Highway Patrol (CHP) Academy, Yolo County**

1.0 – ITEM

Consider approval of Permit No. 18313-1 (Attachment B)

2.0 – APPLICANT

West Sacramento Area Flood Control Agency (WSAFCA)

3.0 – LOCATION

The project is located in West Sacramento, adjacent to the CHP Academy, north of I-80, and along the left (south) bank of the Sacramento Bypass. (Sacramento Bypass, Yolo County, see Attachment A)

4.0 – DESCRIPTION

The applicant proposes to strengthen and/or raise approximately 5,820 linear-feet of project levee by constructing approximately 4,400 linear-feet of 25 to 70-foot-deep by 3-foot-wide slurry cutoff wall; flatten the landside and waterside levee slopes to 2.75:1 (H:V) and 3:1 (H:V), respectively, by shifting the levee prism 10 to 20 feet landward; and place concrete, rip-rap, or seeded slope protection on the left (south) bank levee of the Sacramento Bypass.

5.0 – PROJECT ANALYSIS

The proposed strengthen levee of approximately 5,820 linear-feet is designed to meet or exceed the 200-year design water surface elevation (WSE) plus 3-feet of freeboard required for urban areas. The strengthening will include slope flattening, levee crest

raising, slope treatment, and cutoff wall construction. Slope flattening will occur to modify the earthen side slopes, from 2.0-2.5:1 (H:V) on the waterside and 2.5:1 to 2.75:1 (H:V) on the landside to a 3:1 (H:V) on the waterside slope and to a minimum 2.75:1 (H:V) on the landside slope, by shifting the levee prism landward 10 to 20-feet. Slope treatment along the landside of the levee will be seeded (Station 7+00 to 61+75); and treatment of the waterside slope will include a combination of seeded slope (Station 4+59 to 39+75), stone rip-rap slope (Station 3+59 to 4+59), and concrete slope (Station 39+75 to 63+50). The project has an existing waterside cutoff wall from Station 0+00 to 22+09. A new cutoff wall, 70-feet in depth, will be constructed from Station 18+00 to 40+00 then the new wall will transition from 70 to 25-feet in depth from Station 40+00 to 42+25 where the wall will continue at the 25-foot depth until Station 61+75. (See Attachments E, F, and I)

5.1 – Project Background

WSAFCA is in the process of designing and constructing improvements to the levee system that protects the City of West Sacramento (City) in California. Early improvements are part of the West Sacramento Levee Improvement Program (WSLIP). The goal of the WSLIP is to achieve a minimum level of 200-year flood protection for the City.

The City's comprehensive flood control strategy has been guided by the following objectives adopted by the WSAFCA in connection with the WSLIP: 1) provide at least a 200-year level of flood protection to the City, 2) complete urgent levee improvements in advance of construction by the U.S. Army Corps of Engineers (USACE) with funding assistance from the California Department of Water Resources (DWR), 3) partner with the USACE and Board to coordinate efforts on the development of technical documents and of a General Reevaluation Report (GRR), and 4) identify opportunities to work with local and regional partners to complete work efficiently and to supplement local funding.

The WSLIP seeks to meet all of the USACE's current levee design criteria. Early implementation projects constructed in advance of USACE construction will be improved to at least a 200-year level of protection. The remaining reaches of the levee system, protecting the City, will be improved to meet applicable standards for the 200-year water surface elevation from 2010 to 2016. This work will be carried out by the USACE following completion of a GRR and Congressional approval for expanding the scope of the West Sacramento Project. It is anticipated that the GRR will be completed in 2013.

The city of West Sacramento is located in eastern Yolo County at the confluence of the American and Sacramento Rivers. The city lies within the natural floodplain of the Sacramento River, which bounds the city along the east. It is made up of reclaimed land protected from floods by levees and the Yolo and Sacramento Bypass systems. These bypasses divert flood-flows around the city to the west. In addition to the area within the city limits (in Yolo County), the study area partially extends into Solano County on the extreme southwestern edge along the Deep Water Ship Channel (DWSC). Therefore, resources in Solano County have the potential to be affected by the WSLIP and these effects are described on a resource specific basis.

The City, along with the two districts providing operation and maintenance of the existing levee, Reclamation District (RD) 900 and RD 537 have actively pursued the goal of providing reliable flood protection for the West Sacramento area. Working through WSAFCA and in coordination with the USACE, the Central Valley Flood Protection Board (CVFPB), and DWR, two major flood control projects have been completed. The first was constructed from 1990 through 1993 as part of the Sacramento Urban Levee Reconstruction Project. The second project was the West Sacramento Project constructed between 1998 and 2002.

However, even as design work was nearing completion on the West Sacramento Project, under-seepage was noted along the Sacramento Bypass levee in 1997; and stability issues became apparent in 1998 along the RD 537 levee. The City and RD 900 requested the USACE to conduct additional geotechnical investigations and incorporate design changes to address these issues. As a result, the completed West Sacramento Project was modified to reconstruct an entire section of RD 537 levee to replace the original clay and organic material with engineered fill, and place a 60 to 70 foot deep slurry wall to control under-seepage along the segment where the Sacramento Bypass and Yolo Bypass levees intersect.

In the wake of the 1997 storms, the USACE identified under-seepage as an area of concern. Only recently, however, has the USACE issued revised federal levee design criteria to provide a consistent approach for addressing potential levee under-seepage. The geotechnical and engineering investigations currently being conducted for West Sacramento levees have utilized the revised federal levee design criteria. Current engineering analysis depicts the nature of levee deficiencies. WSAFCA's team of consultants is currently working to identify necessary improvements to provide a 200-year level of flood protection for the City.

At the July 2010 Board Meeting, Board authorized sending a letter to the USACE to request 33 U.S.C Section 408 approval of the WSLIP for both the CHP Academy and Rivers projects.

5.2 – Project Design Review

Board staff has reviewed the following documents, provided by the applicant, in preparation of this staff report:

- Final Geotechnical Basis of Design Report (GBODR) – Kleinfelder (October 2010)
- 100% Design Documentation Report – HDR, Inc. (March 2010)
- 100% Design Plans and Technical Specifications – HDR, Inc. (October 2010)
- Hydraulic Impact Analysis Report of the WSLIP (Attachment G)

This technical review concluded that the designs for SREL Phase 3 are in accordance with current Board, DWR ILDC Version 4, and USACE standards.

5.3 – Hydraulic Analysis

MBK Engineers has completed a one-dimensional hydraulic analysis for the WSLIP by modifying and refining the USACE Sacramento River UNET model. The project was analyzed with the assumption that the following design elements and existing conditions were in place:

- Raise West Sacramento levees to 1-in-200 year WSE plus 3-feet of freeboard
- In channel erosion protection design elements in place
- Levees overtop without failing
- Urban levees have minimum crown elevation of 1-in-200 year WSE plus 3-feet of freeboard
- Folsom Joint Federal Project (FJFP) is in place
- Three Rivers Levee Improvement Projects are in place (RD 784 Bear River setback levee, RD 784 Western Pacific Interceptor Canal levee raise, and RD 784 Feather River levee setback)
- Levee District 1, of Sutter County, Feather River (west) levee setback in place
- The Natomas Levee Improvement Project (NLIP) in place

- Sacramento River Flood Control Project (SRFCP) levees with deficient design freeboard were raised to eliminate the deficiency

The hydraulic analysis for this project included 3 different project conditions. The conditions analyzed were the “Existing” Condition – existing (April 2008) top of levee grade and reservoir operation criteria, “Without Project” Condition – same as existing with FJFP in place and urban levees outside of the WSLIP have 1-in-200 year plus 3 feet of freeboard, and the “With Project” Condition – same as without project except the WSLIP raised to design 1-in-200 year WSE plus 3-feet of freeboard and in-channel erosion protection in-place.

The project has been designed for the 200-year event based on the American River carrying the design flow from the Folsom Joint Federal Project (JFP) of 160,000-cfs, the Sacramento weir is in full operation, and the Yolo Bypass is flowing at the 200-yr event. This scenario produces the most conservative design Water Surface Elevation (WSE) for the 200-year event.

Hydraulic impacts for this project show that WSE impacts are 0.00-feet for both 100 and 200-year design storms, and even at the 500-year design storm, the hydraulic impact on the WSE is only 0.05-feet maximum.

Station	Freeboard (ft)	200-yr WSE (ft)	Existing Grade (ft)	Finished Grade (ft)
18+00	4.20	34.42	38.32	38.62
62+00	4.20	36.41	40.53	40.61

A wind wave analysis was performed by NHC Hydraulics for the CHP Academy. The wind wave analysis for CHP Academy site indicated the western end of the project is exposed to waves from winds blowing from the Northwest across the Yolo Bypass. The wind waves were expected to erode the grass covered waterside levee face. The 100% plans include Rock Rip-Rap Station 3+59 to 4+59 to mitigate for the erosion potential of the wind wave run up. The wind wave analysis did not show any erosion east of Station 4+59 for this reach of the Sacramento Bypass, which flows west to east and in the same direction of the wind-waves.

SB 276, which was signed into law October 13, 2007, states in part,

“... the increase in flood protection associated with improving the American and Sacramento River levees and modifying Folsom Dam will be accomplished without altering or otherwise impairing the design flows and water surface elevations prescribed as part of the Sacramento River Flood Control Project. Accordingly, these improvements will not result in significant adverse hydraulic

impacts to the lands protected by the Sacramento River Flood Control Project. Thus, it is not necessary or appropriate to require these projects to include hydraulic mitigation..."

Based upon the report on the Effects of Projected Sea-Level Change (MBK February 2010), for the worst case scenario, projected out 100-years with rapid sea-level rise and a 200-yr storm applied, the maximum sea-level rise calculated for the project would be 0.09-feet. This value is less than the accuracy of vertical accuracy for earthwork and settlement and has therefore been determined to be insignificant.

Staff has concluded that they agree with the applicant's assessment that the proposed project has no adverse hydraulic impact on the Sacramento River Flood Control System or the State Plan of Flood Control, and therefore is in compliance with both Board and USACE standards. (See Attachment G)

5.4 – Geotechnical Analysis

Sacramento Bypass South Levee (SBSL), in terms of project modification, extends from Station 3+00 to Station 64+00. SBSL was constructed in 1937. In the same year, Sacramento Weir structure adjacent to upstream end of the SBSL was also constructed. This levee is maintained by DWR Maintenance Area 4 (MA 4).

The existing bypass south levee has a crown width of 25 to 30 feet. Waterside slope is mostly 2:1 (H:V); however, in few places it is 1.9:1 (H:V). Landside slope ranges from 2.5:1 (H:V) to 3:1 (H:V). The crown elevation ranges from El. 38 feet to 43.8 feet, and the landside levee toe elevation ranges from El. 15 feet to 20 feet that yields a levee height of approximately 20 feet.

Geotechnically, the levee has been divided into three reaches. Reach 1 extends from Station 3+00 to Station 21+00; Reach 2 extends from Station 21+00 to Station 40+00 and Reach 3 extends from Station 40+00 to Station 64+00. The subsurface conditions in all the reaches are variable. Generally, the subsurface conditions are as follows. The existing levee material is underlain by near surface to surficial fine grained thin soil. This layer is underlain by thick soft silt and clay soil which is underlain by clean to silty sand and/or gravel layer. Beneath this layer low permeability, firm fine grained (silt/clay) soil layer at depth are present. Underneath this layer, dense clean to silty sand and or gravel soil layers exist.

Geotechnical analysis was conducted to evaluate seepage and slope stability conditions of the existing levee. The designed water surface elevation (WSE) was provided by MBK Engineers. The analyses were carried out for 1957, 100-yr, 200-yr WSE and at HTOL to check the levee performance. Three cross sections along the SBSL, one for each reach were analyzed for seepage and stability analyses. The subsurface profiles were developed based on the geotechnical explorations. Data from several

explorations were typically used to develop the stratigraphy for the cross sections with difference to the more conservative interpolation where appropriate. Isolated inter-beds and particularly discontinuous and less predominant layers were often ignored or combined into more prevalent layer.

Based on the seepage analysis performed for 200-yr WSE (designed WSE), the existing drained and un-drained stability berm appears to protect against future problems associated with through seepage. The existing waterside toe cutoff wall should protect against future problems associated with under-seepage in Reach 1. Remediation of under-seepage in Reach 2 and both through seepage and shallow under-seepage in Reach 3 has been addressed with provision of a cutoff wall constructed along the centerline of the levee.

Based on the stability analysis for 200-yr WSE with existing condition, it appears the landside stability is not an issue. However, it was recommended the existing waterside slope should be flattened to protect against future problems associated with marginal stability under sudden drawdown conditions in Reach 1 and 2. Seismic and rapid-draw-down conditions have yielded a couple sections of concern, regarding liquefaction and exit gradients. However, the USACE, Board staff, and WSAFCA Board of Senior Consultants (BOSC) have concluded that the mitigation used in the design is sufficient and to alleviate any additional concerns that may arise, a system of piezometers for monitoring the levee stability will be put in place after completion of the project.

The proposed project geometry consists of a crest elevation that is 3-feet over the 200-yr WSE, a minimum 20-foot crest, and a minimum waterside levee slope of 3:1 (H:V) and minimum landside levee slope of 2.75:1 (H:V). (See Attachment H)

Staff has concluded that they agree with the applicant's assessment that the project does not bear any geotechnical impacts to the Sacramento River Flood Control System of the State Plan of Flood Control, as all geotechnical issues have either been mitigated or determined to have insignificant effects on the structural integrity of the levee as long as the piezometers are installed, per the design plans and specifications. The piezometers will be installed under this permit, but will be awarded under a separate construction contract.

5.5 – Project Benefits

The project has the following benefits associated with its completion:

- Achieve a design of 1-in-200 year protection plus 3-feet of freeboard for the urban City of West Sacramento
- Construct levee improvements as soon as possible to reduce flood risk as quickly as possible

- Construct improvements that are politically, socially, economically, and environmentally acceptable
- Ensure continuing Federal assistance for levee repairs and maintenance

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

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

- Permit No. 18313-1 is not valid until the Central Valley Flood Protection Board has received 33 U.S.C. Section 408 approval and letter of permission from the U.S. Army Corps of Engineers (Corps). The permittee shall comply with all conditions set forth in the letter of permission from the Corps once it is received, which shall be attached to this permit as Exhibit A and incorporated by reference. The Corps letters are expected to be received prior to the Board meeting on May 26, 2011.
- DWR MA 4 has endorsed this project on May 10, 2011 and the endorsement has been incorporated into Permit No. 18313-1 by reference as Exhibit B.

7.0 – CEQA ANALYSIS

Board staff has prepared the following CEQA Findings:

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. 2007102130, May 2010) and Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR, February 2010) for the West Sacramento Levee Improvements Program – CHP Academy submitted by the West Sacramento Area Flood Control Agency. The West Sacramento Area Flood Control Agency, as the lead agency, determined that the project would have a significant effect on the environment and adopted Resolution 11-03-01 (which includes Findings, Facts in Support of Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan) on March 10, 2011 and subsequently filed a Notice of Determination on March 11, 2011 with the Yolo County Clerk. These documents, including project design and WSAFCA resolutions, may be viewed or downloaded from the Central Valley Flood Protection Board website at <http://www.cvfpb.ca.gov/meetings/2011/5-26-2011.cfm> under a link for this agenda item.

The documents are also available for review in hard copy at the Board and City of West Sacramento offices.

7.1 – Impacts that can be Mitigated

The significant impacts and the mitigation measures to reduce them to less than significant are adopted in WSAFCA Resolution 11-03-01 dated March 10, 2011 (which includes Findings, Facts in Support of Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan). Based on its independent review of the DPEIS/DPEIR and FEIS/FEIR and the WSAFCA Resolution 11-03-01, 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 lessen the significant environmental effects as identified in the DEIS/DEIR and FEIS/FEIR. Moreover, such changes or alterations are within the responsibility and jurisdiction of the WSAFCA and such changes have been adopted by that agency. The following are the significant impacts and the mitigation measures to reduce them to less than significant:

- Flood Control –The project proponent has prepared drainage studies as needed, and remediated effects of the alteration of existing drainage patterns through project design.
- Water Quality and Groundwater – Prior to construction, the project proponent will implement a Stormwater Pollution Prevention Plan (SWPPP), Bentonite Slurry Spill Contingency Plan (BSSCP), and a Spill Prevention, Control, and Countermeasures Plan (SPCCP) to mitigate for effects on groundwater or drinking water quality resulting from construction and operation.
- Geologic and Soils Resources – The project proponent will implement the corrective actions identified as part of a project-specific Geotechnical Report to minimize the effects of expansive soils.
- Biological Resources – The project proponent will install protective barrier fencing around sensitive wetland/riparian habitats, comply with the City of West Sacramento Tree Preservation Ordinance, conduct mandatory Contractor/Worker Awareness Training for construction personnel, retain a Biological Monitor during construction, and conduct Pre-Construction Surveys for listed species and nesting migratory birds to minimize the effects on their respective habitats. Compensation plans for the loss of woody riparian habitat and wildlife if loss occurs will be completed post construction.
- Utilities and Public Services – The project proponent will verify utility locations, coordinate with utility providers, prepare a Response Plan and conduct worker

training to minimize damage of public utility infrastructure and disruption of service during construction.

- Hazards and Hazardous Materials – To minimize effects of exposure to hazardous materials encountered at the project site, the project proponent will implement measures to maintain surface water quality and groundwater quality, provisions for dewatering, and if necessary complete Environmental Site Assessment Investigations.

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 FEIS/FEIR:

- New Source of Light or Glare - During construction, residents across the Sacramento River along the Natomas Garden Highway area and the nearby CHP Academy would temporarily experience a new source of light or glare that would affect their viewshed.
- Archaeological Resources – Project proponent will implement Inadvertent Discovery Procedures of the WSLIP Program Historic Properties Management Plan.
- Disturbance of Native American and Historic-Period Human Remains - Project proponent will implement Human Remains Discovery Procedures of the WSLIP Program Historic Properties Management Plan.
- Construction Emissions – Project proponent will implement measures to reduce exhaust emissions, and a fugitive dust control plan.

The Board 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

WSAFCA adopted Resolution 11-03-01 which included 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 achieving 200-year flood protection, incremental levee improvements that will bring the levees protecting the city of West Sacramento up to current Federal

standards, and providing recreation opportunities that are compatible with flood improvement actions that also meet the city's recreation and open space goals. 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 Protection 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 has considered all the evidence presented in this matter, including the original and updated applications for Permit No. 18313-1, technical documentation provided by WSAFCA on CHP Academy Project proposed improvements, past and present Staff Reports and attachments, the Environmental Impact Report on the CHP Academy Project (Draft and Final Versions), WSAFCA Resolution 11-03-01 including findings and Statement of Overriding Considerations, the Mitigation Monitoring and Reporting Program, all letters and other correspondence received by the Board and in the Board's files related to this matter.

The custodian of the file is Executive Officer Jay Punia at the Central Valley Flood Protection Board, 3310 El Camino Avenue, Room 151, Sacramento, California 95821.

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.

In making its findings, the Board has used the best available science relating to the issues presented by all parties. On the important issue of hydraulic impacts and the computed water surface profiles, WSAFCA used the UNET one-dimensional unsteady flow model developed by the USACE for the Sacramento-San Joaquin Comprehensive Study. The model is considered by many experts as one of the best

available scientific tools for the purpose of modeling river hydraulics, including flood control system simulations and water surface profile computations. Geotechnical and overall standards for levee design including the USACE, DWR ILDC Version 4, and Central Valley Flood Protection Board (Board) have been taken into consideration and the design is in compliance with these standards.

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

This project has positive effects on the State Plan of Flood Control as it includes features that will provide to the City of West Sacramento a level of 200-year flood protection. The Board also finds that none of the changes in project design between the 60 to 100 percent design levels result in adverse hydraulic impacts on the entire State Plan of Flood Control.

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

The project would have no net increases in operational greenhouse gas (GHG) emissions impacting climate change. Emissions associated with the project would occur over a finite period of time as opposed to operational emissions, which would occur over the lifetime of a project. The project analysis included projected calculations of sea-level rise, in which, the rise was determined to be insignificant.

9.0 – STAFF RECOMMENDATION

Staff recommends that the Board adopt the CEQA findings, Resolution No. 11-17, approve Permit No. 18313-1, conditioned upon receipt 33 U.S.C. Section 408 approval and letter of permission from the U.S. Army Corps of Engineers, and direct staff to file a Notice of Determination with the State Clearinghouse.

10.0 – LIST OF ATTACHMENTS

- A. Location Map
- B. Draft Permit No. 18313-1
 - Exhibit A: U.S. Army Corps of Engineers 33 U.S.C. Section 408 Approval and Letter of Permission (expected prior to 5-26-11)
 - Exhibit B: DWR MA 4 Endorsement
- C. Resolution 11-17
- D. Project Syllabus

- E. Typical Sections
- F. Design Plans
- G. Geotechnical Project Features Table
- H. Real Estate Drawings

Design Review:	Nancy C. Moricz, P.E.
Environmental Review:	James Herota, E.S. Andrea Mauro, E.S.
Document Review:	David R. Williams, P.E. Dan S. Fua, P.E. Len Marino, P.E.

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18313-1 BD

This Permit is issued to:

West Sacramento Area Flood Control Agency
1420 Merkley Avenue
West Sacramento, California 95691

To strengthen and/or raise approximately 6,200 linear-feet of project levee by constructing approximately 4,400 linear-feet of 25 to 70-foot-deep by 3-foot-wide slurry cutoff wall; flatten the landside and waterside levee slopes to 2.75:1 (H:V) and 3:1 (H:V), respectively, by shifting the levee prism 10 to 20 feet landward; place concrete, rip-rap, or seeded slope protection, and install 8 piezometers along the left (south) bank levee of the Sacramento Bypass. The project is located in West Sacramento, adjacent to the CHP Academy, north of I-80 (Section 29&30, T9N, R4E, MDB&M, Maintenance Area 4, Sacramento Bypass, Yolo 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
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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. 18313-1 BD

THIRTEEN: Within three years from completion of the construction of the work authorized under this permit, the permittee shall provide the Sacramento and San Joaquin Drainage District, acting by and through the Central Valley Flood Protection Board of the State of California, a permanent easement and/or a joint use agreement granting all flood control rights upon, over and across the property that is or will be occupied by the existing or to-be-constructed levee including the area of the cutoff wall and levee raise and realignment fill areas. The easement must include the following: 1) the levee section; 2) an area ten (10) feet in width from the waterside levee toe; the area ten (10) feet in width adjacent to the existing and new landward levee toes, if the areas are not presently encumbered by a Central Valley Flood Protection Board easement. For information regarding existing Central Valley Flood Protection Board Easements, please contact Angelica Aguilar at (916) 653-5782.

FOURTEEN: No construction work within the easement or rights of way, both existing and to be provided under this permit, of flood control features, including levees and seepage berms shall be done during the flood season from November 1 to April 15 without prior approval of the Central Valley Flood Protection Board.

FIFTEEN: All work approved by this permit shall be in accordance with the (100%) 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.

SIXTEEN: All addendums or other changes made to the submitted drawings or specifications 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 drawings or specifications 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.

SEVENTEEN: There shall be no plantings within the project area under this permit, except that of native grasses, which may be required for slope protection. The permittee shall be required to apply for a separate or modified permit for any proposed plantings within the floodway.

EIGHTEEN: 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.

NINETEEN: 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.

TWENTY: 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.

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

TWENTY-TWO: All proposed recreational features and asphalt pavement on the finished levee and the recreational / pedestrian ramps and roads will be maintained in total by the City of West Sacramento.

TWENTY-THREE: The permittee shall provide construction supervision and inspection services acceptable to the Central Valley Flood Protection Board.

TWENTY-FOUR: The permittee shall contact the U.S. Army Corps of Engineers regarding inspection of the project during construction as the proposed work is an alteration to the existing Federal Flood Control Project that will be incorporated into the Sacramento River Flood Control Project, an adopted plan of flood control.

TWENTY-FIVE: Prior to commencement of excavation, the permittee shall create a photo record, including associated descriptions, of the levee 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.

TWENTY-SIX: If FEMA certification of the levee by the Corps of Engineers is being considered, the project proponent should contact the U. S. Army Corps of Engineers regarding inspection of this project during construction for FEMA certification purposes.

TWENTY-SEVEN: The stability of the levee shall be maintained at all times during construction.

TWENTY-EIGHT: 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.

TWENTY-NINE: No material stockpiles, temporary buildings, or equipment shall remain in the floodway during the flood season from November 1 to April 15.

THIRTY: The permittee shall cooperate with the Central Valley Flood Protection Board to ensure that any encroachment that must be relocated, modified or otherwise altered to accommodate construction of the improvements permitted herein are relocated, modified or otherwise altered in a manner that complies with current applicable state and federal standards. If the affected encroachment has an existing Board permit or is subject to some other applicable Board authorization, the permittee shall cooperate with the Board to ensure the permit or other authorization is appropriately amended to reflect the changed condition as shown on as-built drawings for the encroachment and the overall project. If the encroachment does not have a Board permit or other Board authorization, the permittee shall cooperate with the Board to determine whether a Board permit is required. If so, permittee shall cooperate with the Board to ensure that required permit application is made and, if granted, the permit reflects the changed condition as shown on as-built drawings for the encroachment and the overall project.

THIRTY-ONE: During demolition of the project, any and all anticipated or unanticipated conditions encountered which may impact levee integrity or flood control shall be brought to the attention of the Flood Project Inspector immediately and prior to continuation. Any encountered abandoned encroachments shall be completely removed or properly abandoned under the direction of the Department of Water Resources Inspector and the Early Implementation Project (EIP) Construction Supervisor.

THIRTY-TWO: The permittee shall be responsible for all damages due to settlement, consolidation, or heave from any construction-induced activities.

THIRTY-THREE: A profile of the levee crown roadway and access ramp that will be utilized for access to and from the borrow area shall be submitted to the Central Valley Flood Protection Board prior to commencement of construction.

THIRTY-FOUR: The haul ramps and utilized levee crown roadway shall be maintained in a manner prescribed by the authorized representative of the Department of Water Resources, or any other agency responsible for maintenance.

THIRTY-FIVE: Any damage to the levee section, crown, roadway, or access ramps that will be utilized for access for this project shall be promptly repaired to the condition that existed prior to this

project.

THIRTY-SIX: Excavations below the design flood plane and within the levee section or within fifty (50) feet of the projected waterward and landward levee slopes, excluding the cutoff wall trench, shall have side slopes no steeper than 1 horizontal to 1 vertical. Flatter slopes may be required to ensure stability of the excavation.

THIRTY-SEVEN: Fluid pressures and flow rates shall be carefully monitored and controlled to minimize the potential for hydrofracturing.

THIRTY-EIGHT: Excess bentonite or other cutoff wall fluids shall be properly disposed of outside of the floodway. The bentonite or other cutoff wall fluids shall not be used as backfill material for levee reconstruction.

THIRTY-NINE: Fill on the levee slope shall be keyed into the existing levee section with each lift.

FORTY: Fill material shall be placed only within the area indicated on the approved plans.

FORTY-ONE: All fill material shall be impervious material with a minimum of 30 percent or more passing the No. 200 sieve, a plasticity index of 8 to 30, and a liquid limit of less than 55 and free of lumps or stones exceeding 3 inches in greatest dimension, vegetative matter, or other unsatisfactory material.

FORTY-TWO: Density tests by a certified soils laboratory will be required to verify compaction of backfill within the floodway and within 10 feet of the levee toes.

FORTY-THREE: The fill surface area shall be graded to direct drainage away from the toe of the levee.

FORTY-FOUR: Backfill material for excavations within the, existing and to be constructed, levee section and within ten (10) feet of the levee toes shall be placed in 4- to 6-inch layers, moisture conditioned above optimum moisture content, and compacted to a minimum of 95 percent relative compaction as measured by ASTM Method D698.

FORTY-FIVE: The slopes of the proposed levee shall be no steeper than 3 horizontal to 1 vertical on the water side and 2 horizontal to 1 vertical on the land side.

FORTY-SIX: Any pipe or conduit being reinstalled in the levee section and within fifty (50) feet of both the waterward and landward levee toes shall meet Title 23 standards.

FORTY-SEVEN: Where appropriate the new and reconstructed levee crown roadway and access ramps shall be surfaced with a minimum of 4 inches of compacted, Class 2, aggregate base (Caltrans Specification 26-1.02A).

FORTY-EIGHT: Aggregate base material shall be compacted to a relative compaction of not less than 95 percent per ASTM Method D1557-91, with a moisture content sufficient to obtain the required compaction.

FORTY-NINE: Revetment shall be uniformly placed and properly transitioned into the bank, levee slope, or adjacent revetment and in a manner which avoids segregation.

FIFTY: All revetment on the waterside of the levee or river bank shall be quarry stone and shall meet the design and grading requirements, as specified, in Title 23, Section 121.

FIFTY-ONE: The revetment shall not contain any reinforcing steel, floatable, or objectionable material. Asphalt or other petroleum-based products may not be used as fill or erosion protection on the levee section or within the floodway.

FIFTY-TWO: In the event existing revetment on the channel bank or levee slope is disturbed or displaced, it shall be restored to its original condition upon completion of the proposed installation.

FIFTY-THREE: The permittee shall replant or reseed the levee slopes to restore sod, grass, or other non-woody ground covers if damaged during project work.

FIFTY-FOUR: All fencing, gates and signs removed during construction of this project shall be replaced in kind and at the original locations. If it is necessary to relocate any fence, gate or sign, the permittee is required to obtain written approval from the Central Valley Flood Protection Board prior to installation at a new location.

FIFTY-FIVE: All temporary fencing, gates and signs shall be removed upon completion of the project.

FIFTY-SIX: All debris generated by this project shall be disposed of outside the floodway and off the levee section.

FIFTY-SEVEN: Debris that may accumulate on the permitted encroachment(s) and related facilities shall be cleared off and disposed of outside the floodway after each period of high water with the exception of habitat debris, which may remain.

FIFTY-EIGHT: 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.

FIFTY-NINE: In the event that permitted improvements cause levee or bank erosion injurious to the adopted plan of flood control to occur at or adjacent to the permitted encroachment(s), the permittee shall repair the eroded area and propose measures, to be approved by the Central Valley Flood Protection Board, to prevent further erosion.

SIXTY: Any vegetative material, living or dead, that interferes with the successful execution, functioning, maintenance, or operation of the adopted plan of flood control must be removed by the permittee at permittee's expense upon request by the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not remove such vegetation or trees upon request, the Central Valley Flood Protection Board reserves the right to remove such at the permittee's expense.

SIXTY-ONE: 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.

SIXTY-TWO: The permitted encroachment(s) shall not interfere with operation and maintenance of the current or future flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not comply, the Central Valley Flood Protection Board may modify or remove the encroachment(s) at the permittee's expense.

SIXTY-THREE: The permittee acknowledges that some portions of the levee improvements may be overbuilt to account for settlement and that upon adoption of the updated Central Valley Flood Protection Plan, the permittee shall perform a levee crown profile survey of all levee crown covered by this permit and said profile shall be compared to the levee crown profile adopted in the updated Central Valley Flood Protection Plan. The permittee shall ensure that the levee crown does not exceed the updated Central Valley Flood Protection Plan profile.

SIXTY-FOUR: According to the permittee, the improvements herein permitted will control flood flows from a storm with a probability of occurrence of 0.005 in any year (200-year protection). Permittee's design assumed that non-urban existing levees upstream of Natomas will not be raised above the current design for the Sacramento River Flood Control Project as shown on the 1957 profile. Permittee's design flow therefore, reflects upstream flood water losses from levee overtopping where the water surface elevation for the permittee's design storm exceeds the top of levee elevation shown on the 1957 profile. Permittee acknowledges that a Central Valley Flood Protection Plan will be developed, adopted, and regularly updated by the State and the plan and subsequent updates could include improvements that would change the flow and water level associated with permittee's design storm, possibly reducing the level of protection provided by the permitted improvements. Permittee agrees to participate in future modifications to the West Sacramento levees as may be required by the Central Valley Flood Protection Plan and its subsequent updates. Permittee's level of participation shall be equivalent to the level required of other local jurisdictions by the plan. Permittee further agrees that should the Plan include measures that reduce the level of protection provided by the permitted improvements, permittee shall have no basis for a claim of hydraulic impacts.

SIXTY-FIVE: Upon completion of the project, the permittee shall perform a levee crown profile survey and create a photo record, including associated descriptions, of "as-built" levee conditions. The levee crown profile survey and 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 120 days of project completion.

SIXTY-SIX: Within 120 days of completion of the project, the permittee shall submit to the Central Valley Flood Protection Board a certification report, stamped and signed by a professional civil engineer registered in the State of California, certifying the work was performed and inspected in accordance with the Central Valley Flood Protection Board permit conditions and submitted drawings and specifications.

SIXTY-SEVEN: Within 120 days of completion of the project, the permittee shall submit to the Central

Valley Flood Protection Board proposed revision to the U.S. Army Corps of Engineers, Supplement to Standard Operation and Maintenance Manual, West Sacramento River Flood Control Project, and the associated "as-built" drawings for system alterations that are to be incorporated into the federal West Sacramento River Flood Control Project.

SIXTY-EIGHT: The permittee is responsible for all liability associated with damage to the permitted facilities resulting from flood fight, operation, maintenance, inspection or emergency repair and shall defend, indemnify, and hold the Central Valley Flood Protection Board, the Department of Water Resources, the State of California, and Maintenance Area 4, including their agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "agencies"), 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 agencies expressly reserve the right to supplement or take over their defense, in their sole discretion.

SIXTY-NINE: This permit is not valid until the Central Valley Flood Protection Board has received 33 U.S.C. Section 408 approval and letter of permission from the U.S. Army Corps of Engineers (Corps). The permittee shall comply with all conditions set forth in the letter of permission from the Corps, when it is received, which shall be attached to this permit as Exhibit A and incorporated by reference.

SEVENTY: The permittee shall comply with all conditions set forth in the comments from Maintenance Area-4 dated May 10, 2011, which is attached to this permit as Exhibit B and is incorporated by reference.

SEVENTY-ONE: 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. The applicant is also required to contact the Early Implementation Project (EIP) Construction Supervisor by telephone, (916)574-2646 to initiate inspection of the work.

SEVENTY-TWO: 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.

SEVENTY-THREE: If the permittee or successor does not comply with the conditions of the permit and an enforcement by the Central Valley Flood Protection Board is required, the permittee or successor shall be responsible for bearing all costs associated with the enforcement action, including reasonable attorney's fees.

SEVENTY-FOUR: 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.

SEVENTY-FIVE: Any additional encroachment(s) in the floodway, on or in the levee section, and within ten (10) feet of the landside levee toe and berm toes, require an approved permit from the Central Valley Flood Protection Board and shall be in compliance with the Central Valley Flood Protection Board's regulations (Title 23 California Code of Regulations).

SEVENTY-SIX: By acceptance of this permit, the permittee (West Sacramento Area Flood Control Agency) acknowledges the authority of the Central Valley Flood Protection Board to regulate all future encroachments along this levee reach, including those that may encroach upon alterations approved by this permit to incorporation into the federal West Sacramento River Flood Control Project by the U.S. Army Corps of Engineers.

SEVENTY-SEVEN: The applicant must adopt a resolution within 18 months from the date of issuance of this permit, that complies with Board Resolution No. 11-15, regarding the Board's Joint Powers Agreement (JPA) Policy, and the resolution must be to the satisfaction of the Board.

SEVENTY-EIGHT: Prior to construction, the applicant, West Sacramento Area Flood Control Agency (WSAFCA), shall have obtained legal possession of all property where work to be performed under this permit is located.

SEVENTY-NINE: Survey markers are to be installed to delineate easement boundaries and a GIS shapefile of the boundaries is to be provided to DWR within 120 days from construction completion.

EIGHTY: A copy of this permit shall be included as an attachment to any Long-Term Management Plan for the permitted project area.

EIGHTY-ONE: This permit shall run with the land and all conditions are binding on permittee's successors and assigns.

**ATTACHMENT B – Exhibit A: Corps 33 U.S.C. Section
408 Approval and Letter of Permission**

These letters have not been received by Board staff; however, it is expected to arrive prior to the Board Meeting on May 26, 2011

State of California

DEPARTMENT OF WATER RESOURCES
CENTRAL VALLEY FLOOD PROTECTION BOARD

California Natural Resources Agency

**APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT**

Application No. 18313-1
(For Office Use Only)

1. Description of proposed work:

The CHP Academy Site is approximately 6,500 ft long, encompassing the Sacramento Bypass Levee. To address under- and through-seepage concerns, an 80-foot-deep by 3-foot-wide slurry cutoff wall will be constructed. The slope flattening treatment will alleviate geometry deficiencies. The waterside slope will be flattened to a 2.5:1 slope shifting the levee prism 10 to 20 feet landward. Vegetation within the project extent will be modified, as needed, to comply with current USACE policy. See Attachment A for more details.

2. Location: Yolo County, in Section _____
 Township: 38°35'40.97"N - (N) 121°35'12.57"W-
38°36'9.53"N (S), Range 121°33'20.52"W (W), M. D. B. & M.

3. West Sacramento Area Flood Control Agency of 1420 Merkley Avenue
Name of Applicant Address
West Sacramento CA 95691 916-371-1483
City State Zip Code Telephone Number
916-371-1494
Fax Number

4. Endorsement: (of Reclamation District)
 We, the Trustees of State of California Department of Water Resources, Maintenance Area 4
Name and District Number

approve this plan, subject to the following conditions:

- Conditions listed on back of this form Conditions Attached No Conditions

Kath Egan 5/10/11
Trustee Date Trustee Date
Chief, Flood Maintenance Office

5. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

California Highway Patrol Academy 3500 Reed Ave. West Sacramento 95691
Name Address Zip Code

STATE OF CALIFORNIA
THE RESOURCES AGENCY
CENTRAL VALLEY FLOOD PROTECTION BOARD

RESOLUTION NO. 11-17

FINDINGS AND DECISION AUTHORIZING ISSUANCE OF
ENCROACHMENT PERMIT NO. 18313-1
WEST SACRAMENTO AREA FLOOD CONTROL AGENCY
WEST SACRAMENTO LEVEE IMPROVEMENTS PROGRAM
CALIFORNIA HIGHWAY PATROL ACADEMY PROJECT
YOLO COUNTY

WHEREAS, the West Sacramento Area Flood Control Agency (“WSAFCA”) has begun a multi-year West Sacramento Levee Improvements Program to provide the City of West Sacramento with a level of 200-year flood protection; and

WHEREAS, WSAFCA is a Joint Powers Authority comprised of the City of West Sacramento, Reclamation District (RD) 900 and RD 537 for the purposes of constructing the improvements necessary to enhance the West Sacramento Levee System, including the levees along the Sacramento Bypass and the Sacramento River; and

WHEREAS, WSAFCA as lead agency under the California Environmental Quality Act, Public Resources Code sections 21000 *et seq.* (“CEQA”) prepared an Environmental Impact Report on the West Sacramento Levee Improvements Program (“EIR”) incorporated herein by reference and available at the Central Valley Flood Protection Board (Board) offices or WSAFCA offices; and

WHEREAS, WSAFCA as lead agency, prepared a Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) (SCH No. 2007102130, May 2010) and Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR, December 2010) for the West Sacramento Levee Improvements Program – California Highway Patrol (CHP) Academy Project. WSAFCA, as the lead agency, determined that the project would have a significant effect on the environment and adopted Resolution 11-03-01 on March 10, 2011 (which includes Findings, Facts in Support of Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan) and filed a Notice of Determination with the Yolo County Clerk on March 11, 2011; and

WHEREAS, WSAFCA as lead agency, certified the EIR, adopted mitigation measures and a Mitigation Monitoring Reporting Plan (“MMRP”) (incorporated herein by reference and available at the Central Valley Flood Protection Board or at WSAFCA), approved findings and a statement of overriding considerations pursuant to CEQA and the CEQA Guidelines (incorporated herein by reference); and approved the CHP Academy Project; and

WHEREAS, WSAFCA submitted Application No. 18313-1 to the Central Valley Flood Protection Board on May 24, 2010; and

WHEREAS, on July 23, 2010, the Board approved a request to the U.S. Army Corps of Engineers (“Corps”) for 33 U.S.C. Section 408 (“Section 408”) approval to alter the federal flood control project levee along the left (south) bank levee of the Sacramento Bypass and delivered that request to the Corps on July 30, 2010; and

WHEREAS, the geographic description of the project area is in the City of West Sacramento, adjacent to the CHP Academy, north of I-80, and along the left (south) bank of the Sacramento Bypass, in Yolo County; and

WHEREAS, WSAFCA proposes to strengthen and/or raise approximately 6,200 linear-feet of project levee by constructing approximately 4,400 linear-feet of 25 to 70-foot-deep by 3-foot-wide slurry cutoff wall; flatten the landside and waterside levee slopes to 2.75:1 (H:V) and 3:1 (H:V), respectively, by shifting the levee prism 10 to 20 feet landward; and place concrete, rip-rap, or seeded slope protection on the left (south) bank levee of the Sacramento Bypass; and

WHEREAS, Board staff completed a technical review of 100% plans and technical specifications for the proposed levee strengthening design, consisting of: slurry cutoff wall, slope protection, and flattening of the landside and waterside levee slopes, and have concluded that design is in accordance with current Board and Corps standards; and

WHEREAS, Board staff will review any addendums or other changes to the submitted drawings or specifications that may occur after issuance of permit No. 18313-1 and determine if the issues can be resolved without further Board consideration, or if the changes are anything more than minor-technical, that they will require the application be brought back to the Board at a future meeting; and

WHEREAS, the Board has conducted a public hearing on Permit Application No. 18313-1 and has reviewed the Reports of its staff, the documents and correspondence in its file, and the environmental documents prepared by WSAFCA.

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. 2007102130, May 2010) and the FEIS/FEIR (SCH No. 2007102130, December 2010) on the CHP Academy Project, submitted by WSAFCA 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. 2007102130, May 2010) and the FEIS/FEIR (SCH No. 2007102130, December 2010), MMRP, and WSAFCA Lead Agency findings, adopts the project description, analysis and findings in the FEIR, MMRP and WSAFCA findings which are relevant to activities authorized by issuance of a final encroachment permit consistent with Permit No. 18313-1 for the CHP Academy Project.
5. **Findings regarding Significant Impacts.** Pursuant to CEQA Guidelines sections 15096(h) and 15091, the Central Valley Flood Protection Board determines that the WSAFCA findings, attached to the Staff Report, and incorporated herein by reference, summarize the FEIR's determinations regarding impacts of the modifications to the CHP Academy Project before and after mitigation. Having reviewed the FEIR and the WSAFCA 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 CHP Academy Project may have the following significant, unavoidable impacts, as more fully described in the FEIR and the WSAFCA 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 FEIS/EIR and WSAFCA findings.

- A. New Source of Light or Glare – During construction, residents across the Sacramento River along the Natomas Garden Highway area and the nearby CHP Academy would temporarily experience a new source of light or glare that would affect their viewshed.
- B. Archaeological Resources – Project proponent will implement Inadvertent Discovery Procedures of the WSLIP Program Historic Properties Management Plan.
- C. Disturbance of Native American and Historic-Period Human Remains – Project proponent will implement Human Remains Discovery Procedures of the WSLIP Program Historic Properties Management Plan.
- D. Construction Emissions – Project proponent will implement measures to reduce exhaust emissions, and a fugitive dust control plan.

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 WSAFCA findings, but that each of the above impacts remains significant after mitigation. Such mitigation measures are within the responsibility of another agency, WSAFCA, and WSAFCA 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 EIR identifies the following significant impacts reduced to a less-than-significant level by mitigation measures identified in the Final EIR and incorporated into the project. It is hereby determined that the impacts addressed by these mitigation measures will be mitigated to a less-than-significant level or avoided by incorporation of these mitigation measures into the project.

- A. Flood Control – The project proponent has prepared drainage studies as needed, and remediated effects of the alteration of existing drainage patterns through project design.
- B. Water Quality and Groundwater – Prior to construction, the project proponent will implement a Stormwater Pollution Prevention Plan (SWPPP), Bentonite Slurry Spill Contingency Plan (BSSCP), and a Spill Prevention, Control, and Countermeasures Plan (SPCCP) to mitigate for effects on groundwater or drinking water quality resulting from construction and operation.
- C. Geologic and Soils Resources – The project proponent will implement the corrective actions identified as part of a project-specific Geotechnical Report to minimize the effects of expansive soils.
- D. Biological Resources – The project proponent will install protective barrier fencing around sensitive wetland/riparian habitats, comply with the City of West Sacramento Tree Preservation Ordinance, conduct mandatory Contractor/Worker Awareness Training for construction personnel, retain a Biological Monitor during construction, and conduct Pre-Construction Surveys for listed species and nesting migratory birds to minimize the effects on their respective habitats. Compensation plans for the loss of woody riparian habitat and wildlife if loss occurs will be completed post construction.
- E. Utilities and Public Services – The project proponent will verify utility locations, coordinate with utility providers, prepare a Response Plan and conduct worker training to minimize damage of public utility infrastructure and disruption of service during construction.
- F. Hazards and Hazardous Materials – To minimize effects of exposure to hazardous materials encountered at the project site, the project proponent will implement measures

to maintain surface water quality and groundwater quality, provisions for dewatering, and if necessary complete Environmental Site Assessment Investigations.

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 WSAFCA 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, WSAFCA, and WSAFCA 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 WSAFCA 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. 18313-1, 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 an immediate need to protect the people and property at risk in the project area. The Board has also considered the benefits of the project which is a portion of planned improvements for the flood control system that will provide the City of West Sacramento with a level of 200-year flood protection. The health and safety benefits of the project, which would significantly reduce the risk of an uncontrolled flood that would result in a catastrophic loss of property and threat to residents of the area, 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 and updated applications for Permit No. 18313-1,

technical documentation provided by WSAFCA on CHP Academy Project proposed improvements, past and present Staff Reports and attachments, the Environmental Impact Report on the CHP Academy Project (Draft and Final Versions), WSAFCA Resolution 11-03-01 including findings and Statement of Overriding Considerations, the Mitigation Monitoring and Reporting Program, all letters and other correspondence received by the Board and in the Board's files related to this matter.

The custodian of the file is Executive Officer Jay Punia at the Central Valley Flood Protection Board, 3310 El Camino Avenue, Room 151, Sacramento, California 95821.

10. **Best Available Science.** In making its findings, the Board has used the best available science relating to the issues presented by all parties. On the important issue of hydraulic impacts and the computed water surface profiles, WSAFCA used the UNET one-dimensional unsteady flow model developed by the USACE for the Sacramento-San Joaquin Comprehensive Study. The model is considered by many experts as one of the best available scientific tools for the purpose of modeling river hydraulics, including flood control system simulations and water surface profile computations. Geotechnical and overall standards for levee design including the USACE, DWR ILDC Version 4, and Central Valley Flood Protection Board (Board) have been taken into consideration and the design is in compliance with these standards.
11. **Effects on State Plan of Flood Control.** This project has positive effects on the State Plan of Flood Control as it includes features that will provide to the City of West Sacramento a level of 200-year flood protection. The Board also finds that none of the changes in project design between the 60 to 100 percent design levels result in adverse hydraulic impacts on the entire 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 associated with the project would occur over a finite period of time as opposed to operational emissions, which would occur over the lifetime of a project. The project analysis included projected calculations of sea-level rise, in which, the rise was determined to be insignificant.

Other Findings/Conclusions regarding Issuance of the Permit.

13. Based on the foregoing and particularly on the evidence that the condition of the existing West Sacramento levees poses an unacceptable risk to life and property, the Board finds and concludes that the issuance of Encroachment Permit No. 18313-1 for the CHP Academy Project 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. 18313-1.

Approval of Encroachment Permit No. 18313-1

15. Based on the foregoing, the Central Valley Flood Protection Board hereby approves the CHP Academy Project and approves issuance of Encroachment Permit No. 18313-1, conditioned upon the receipt of 33 U.S.C Section 408 approval and letter of permission from the U.S. Army Corps of Engineers, in substantially the form provided as Staff Report Attachment B, and final 100% plans, and specifications.

16. The Board directs the Executive Officer to take the necessary actions to prepare and execute the Encroachment Permit No. 18313-1 and all related documents and to prepare and file a Notice of Determination under the California Environmental Quality Act for the West Sacramento Levee Improvements Program, CHP Academy Project.

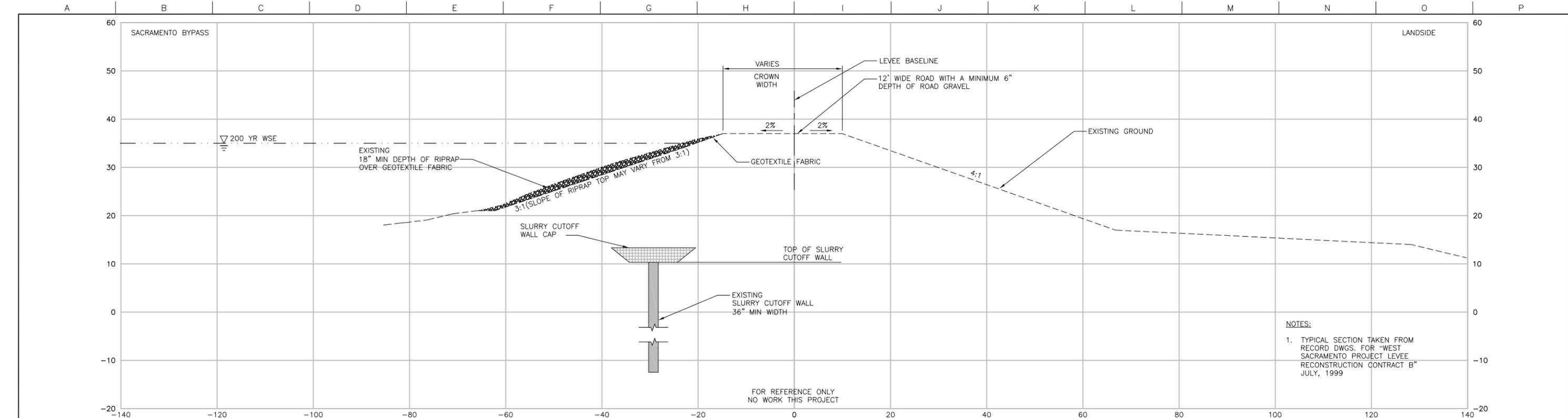
PASSED AND ADOPTED by vote of the Board on _____, 2011

Benjamin F. Carter
President

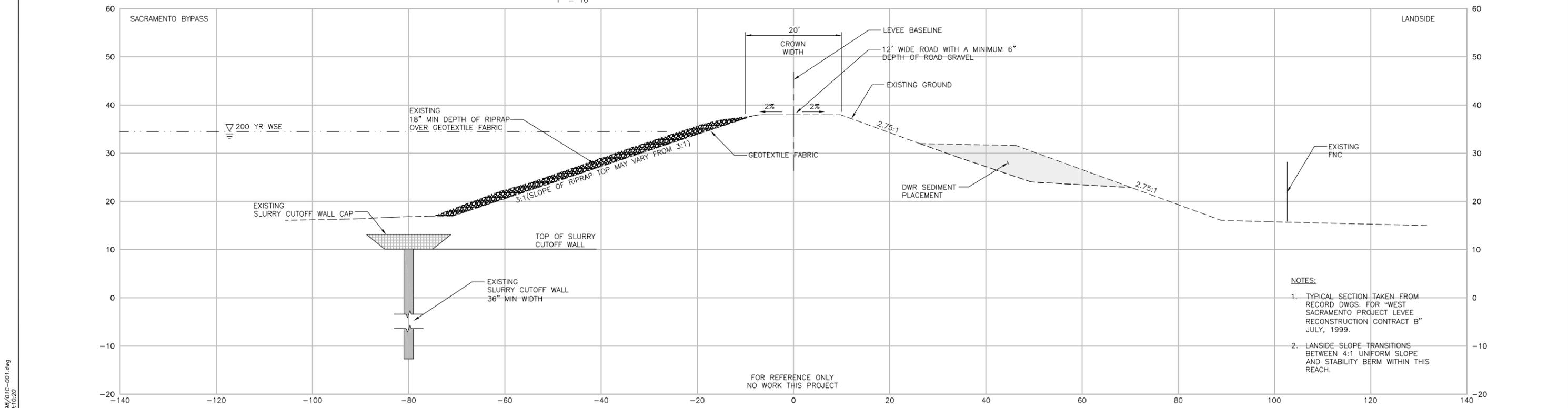
Francis Hodgkins
Secretary

Table 1-1: Project Syllabus

Design Feature	Value(s)	Comment
Levee Crest Elevation	200-yr WSEL + 3 ft Elev. 37.93 at Sta 18+00 Elev. 39.91 at Sta 62+00	200-yr WSEL + 3 ft, unless existing levee is higher, in which case existing will be matched
Levee Side Slopes		
Waterside	3:1	Existing: 2.0 - 2.5 (H) : 1 (V)
Landside	2.75:1 ¹	Existing: 2.75 (H): 1 (V) Plan
Slope Treatment		
Waterside	Sta 3+59 – 4+59 Stone Rip Rap	Provide layer of rip rap with median stone size 200 lb.
Waterside	Sta 3+59 – Sta 21+75	Remove and replace waterside embankment from baseline at 3(H) : (1)V to levee toe
Waterside	Sta 4+59 – Sta 39+75 - Seeded	
Waterside	Sta 39+75 – Sta 63+50± Concrete Reinforced Liner	Alternate for articulated block mat
Landside	Seeded 7+00 – 64+60±	
Upgrade Length	1,441 ft 4,375 ft	Slope flattening 3+59± - 18+00 Cutoff Wall with slope flattening Sta 18+00-61+75
Cutoff Wall Depth		
Sta 18+00 – 40+00	Bottom Elevation -40 ft	
Sta 40+00 – 61+75 ²	Bottom Elevation +5 ft	Transition from -40 ft to +5 ft between Sta 40+00 and 42+25 (5:1) slope
¹ In a few project locations the landside slopes are steeper than 2.75:1 in order to provide a minimum 10-ft offset from the toe for operation, maintenance and inspection. Slope stability analyses show these slopes meet stability criteria. ² The final geotechnical basis of design report evaluated a cutoff wall ending at Station 64+50. Site civil design constraints required terminating the wall at Station 61+75.		



EXISTING LEVEE TYPICAL SECTION - STA 0+00 TO 2+59
1" = 10'



EXISTING LEVEE TYPICAL SECTION - STA 2+59 TO 3+59
1" = 10'

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04-06-11 ACOLLINS 08:10:20

ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION:
NAVD 88 = NCV29 + 2.6'

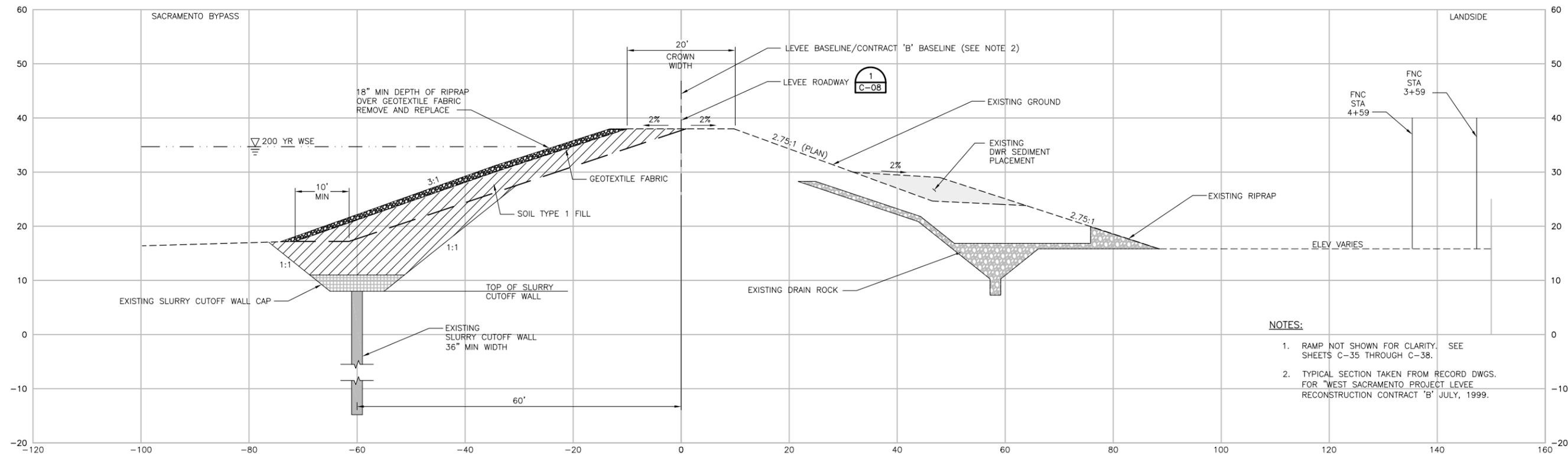


Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

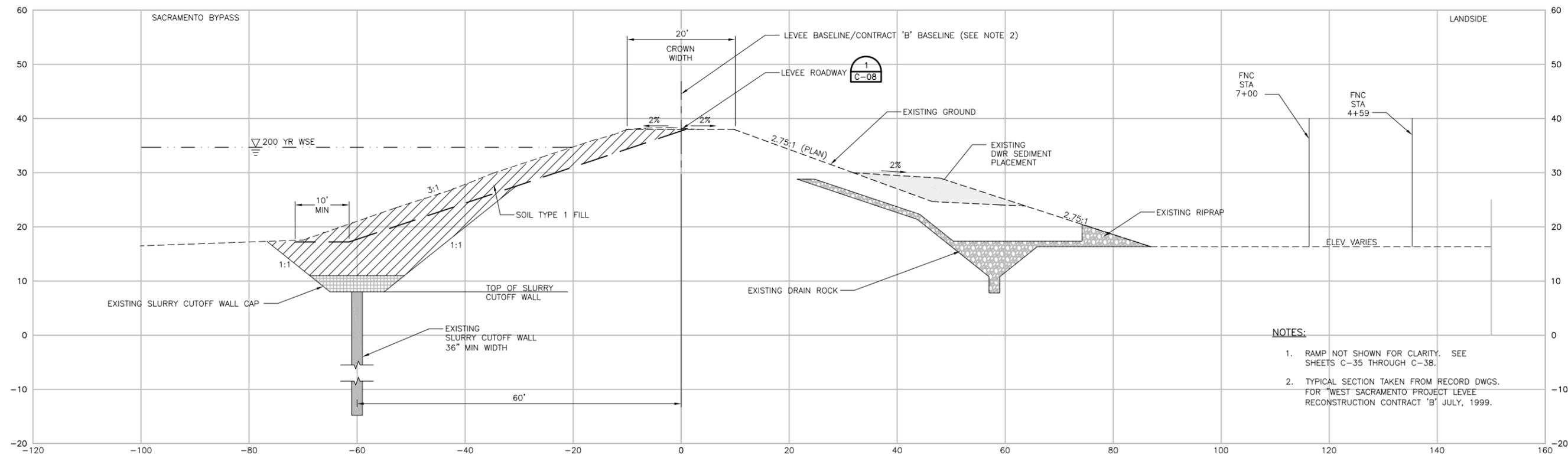
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Date	APRIL 2011
Project No.	007436-68914-141
Scale	1" = 10'
File Name	01C-001.dwg
Drawing No.	C-01
Issue	X

ATTACHMENT E - Typical Sections



TYPICAL SECTION STA 3+59 TO 4+59

1" = 10'



TYPICAL SECTION STA 4+59 TO 7+00

1" = 10'

NOTES:

1. RAMP NOT SHOWN FOR CLARITY. SEE SHEETS C-35 THROUGH C-38.
2. TYPICAL SECTION TAKEN FROM RECORD DWGS. FOR WEST SACRAMENTO PROJECT LEVEE RECONSTRUCTION CONTRACT 'B' JULY, 1999.

NOTES:

1. RAMP NOT SHOWN FOR CLARITY. SEE SHEETS C-35 THROUGH C-38.
2. TYPICAL SECTION TAKEN FROM RECORD DWGS. FOR WEST SACRAMENTO PROJECT LEVEE RECONSTRUCTION CONTRACT 'B' JULY, 1999.

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ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
 VERTICAL DATUM IS NAVD 88
 VERTICAL DATUM CORRECTION EQUATION:
 NAVD 88 = NCV29 + 2.6'

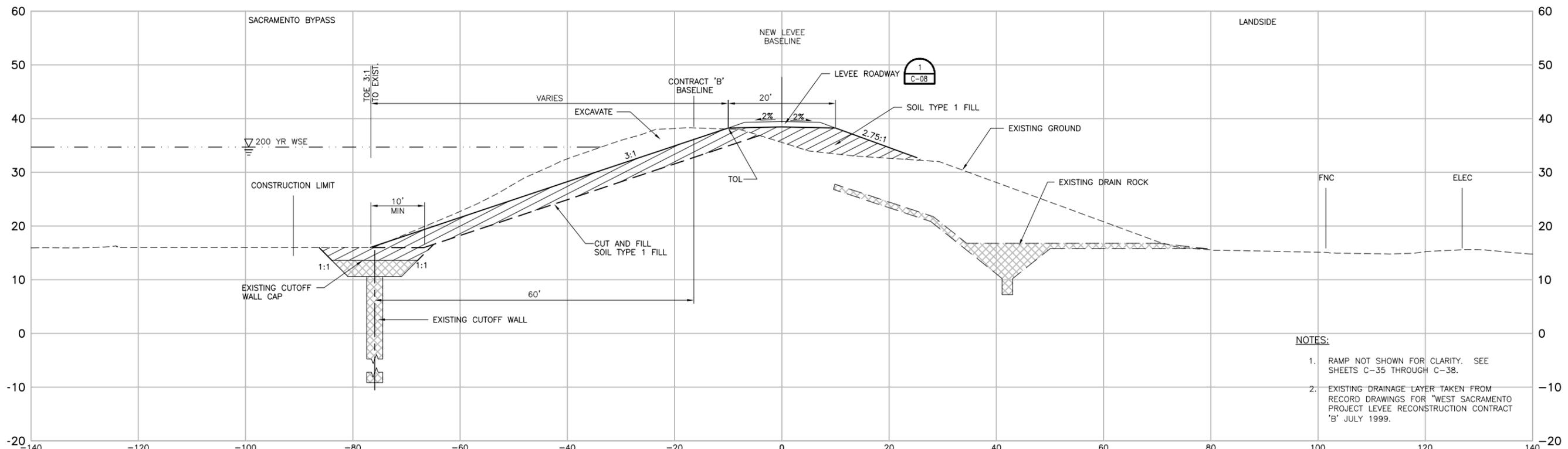


Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
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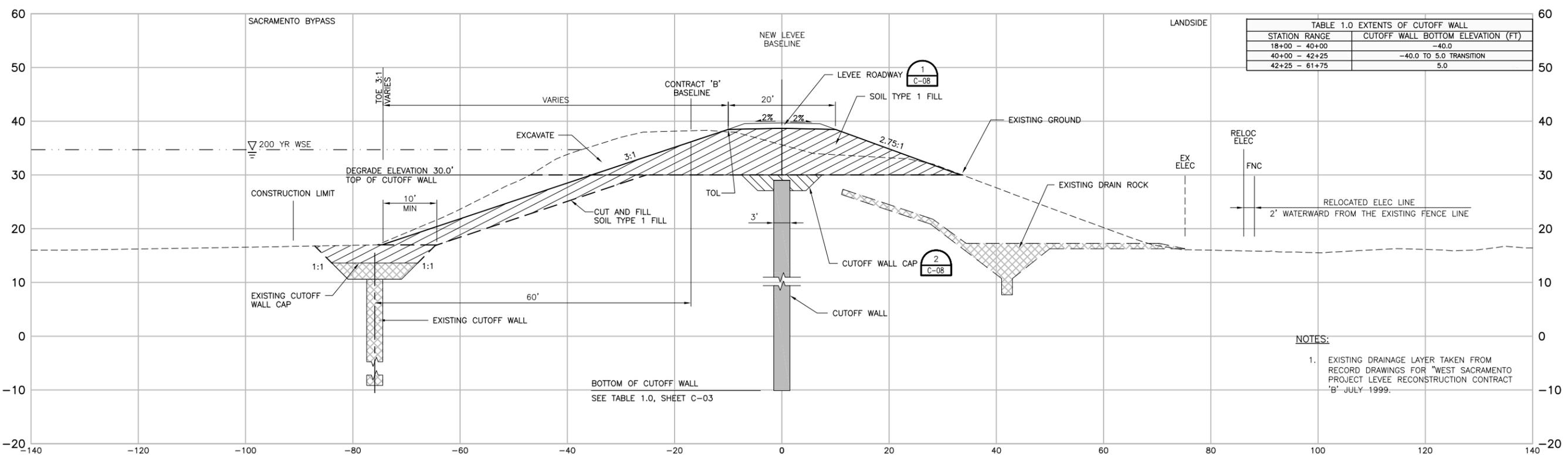
**WEST SACRAMENTO EIP - C.H.P. ACADEMY
 SACRAMENTO BYPASS
 TYPICAL LEVEE SECTIONS
 STA 3+59 TO 7+00**

Date	APRIL 2011	Project No.	007436-68914-141	Drawing No.	C-02	Issue	X
Scale	1" = 10'	File Name	01C-002.dwg				



TYPICAL SECTION STA 7+00 TO 18+00

- NOTES:
- RAMP NOT SHOWN FOR CLARITY. SEE SHEETS C-35 THROUGH C-38.
 - EXISTING DRAINAGE LAYER TAKEN FROM RECORD DRAWINGS FOR "WEST SACRAMENTO PROJECT LEVEE RECONSTRUCTION CONTRACT 'B' JULY 1999.



TYPICAL SECTION STA 18+00 TO 21+75

STATION RANGE	CUTOFF WALL BOTTOM ELEVATION (FT)
18+00 - 40+00	-40.0
40+00 - 42+25	-40.0 TO 5.0 TRANSITION
42+25 - 61+75	5.0

- NOTES:
- EXISTING DRAINAGE LAYER TAKEN FROM RECORD DRAWINGS FOR "WEST SACRAMENTO PROJECT LEVEE RECONSTRUCTION CONTRACT 'B' JULY 1999.

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Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
 VERTICAL DATUM IS NAVD 88
 VERTICAL DATUM CORRECTION EQUATION:
 NAVD 88 = NCV29 + 2.6'



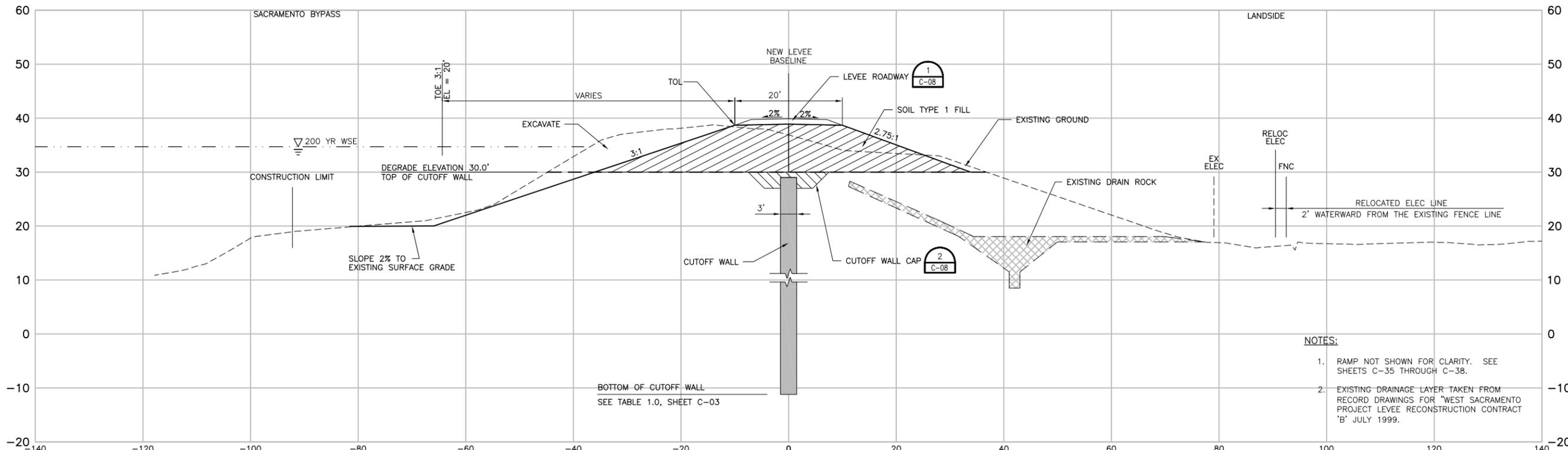
Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
 Levee Improvement Program
 Early Implementation Project
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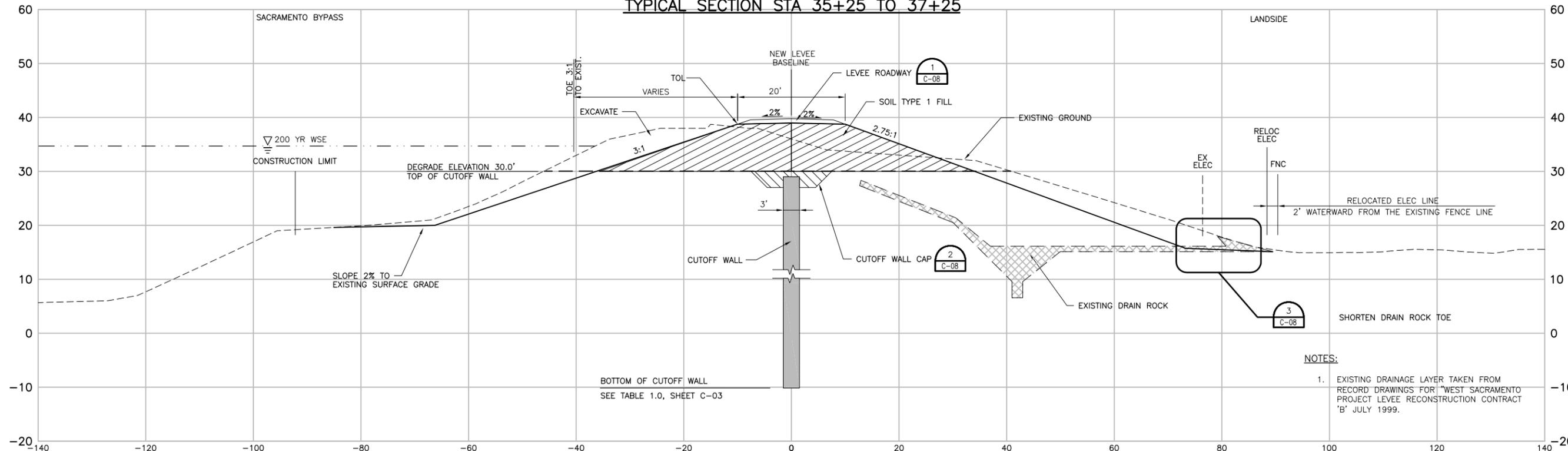
**WEST SACRAMENTO EIP - C.H.P. ACADEMY
 SACRAMENTO BYPASS
 TYPICAL LEVEE SECTIONS
 STA 7+00 TO 21+75**

Date	APRIL 2011	Project No.	007436-68914-141	Drawing No.	C-03	Issue	X
Scale	1" = 10'	File Name	01C-003.dwg				

ATTACHMENT E - Typical Sections



TYPICAL SECTION STA 21+75 TO 24+75
 TYPICAL SECTION STA 27+25 TO 29+25
 TYPICAL SECTION STA 35+25 TO 37+25



TYPICAL SECTION STA 24+75 TO 27+25
 TYPICAL SECTION STA 29+25 TO 35+25

- NOTES:
- RAMP NOT SHOWN FOR CLARITY. SEE SHEETS C-35 THROUGH C-38.
 - EXISTING DRAINAGE LAYER TAKEN FROM RECORD DRAWINGS FOR WEST SACRAMENTO PROJECT LEVEE RECONSTRUCTION CONTRACT 'B' JULY 1999.

- NOTES:
- EXISTING DRAINAGE LAYER TAKEN FROM RECORD DRAWINGS FOR WEST SACRAMENTO PROJECT LEVEE RECONSTRUCTION CONTRACT 'B' JULY 1999.

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ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
 VERTICAL DATUM IS NAVD 88
 VERTICAL DATUM CORRECTION EQUATION:
 NAVD 88 = NCV29 + 2.6'

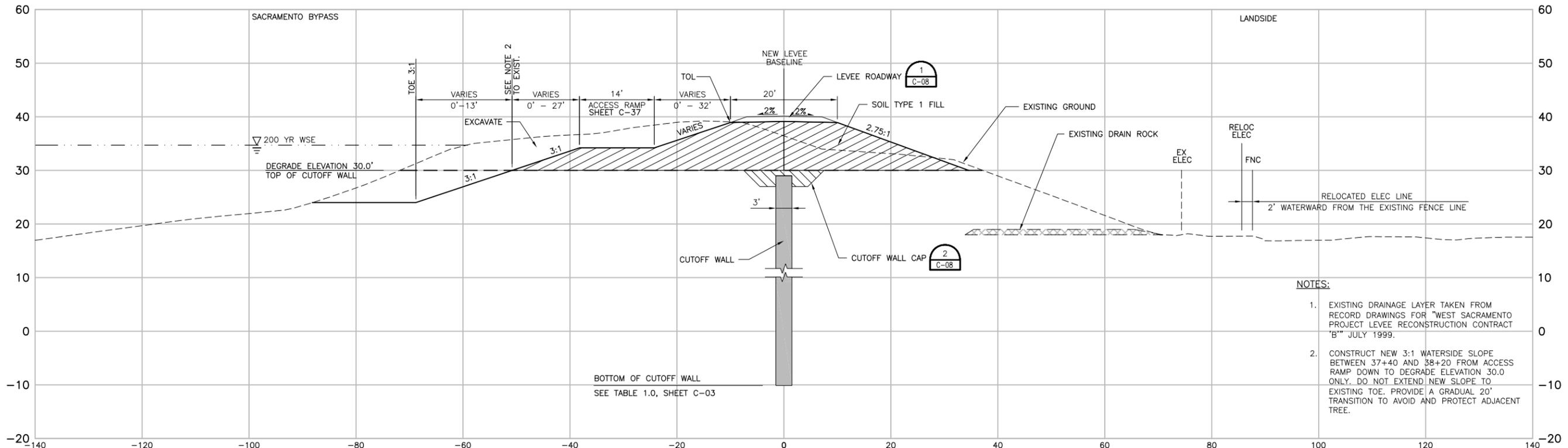


Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
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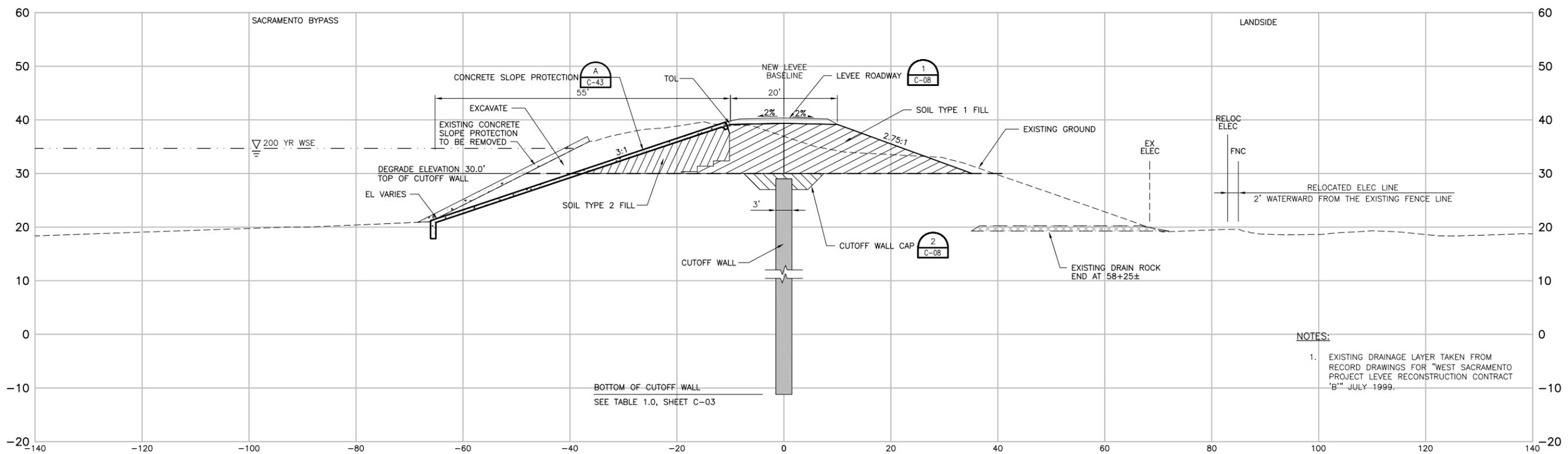
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Date	APRIL 2011
Project No.	007436-68914-141
Scale	1" = 10'
File Name	01C-004.dwg
Drawing No.	C-04
Issue	X

ATTACHMENT E - Typical Sections



TYPICAL SECTION STA 37+25 TO 39+75

- NOTES:
- EXISTING DRAINAGE LAYER TAKEN FROM RECORD DRAWINGS FOR "WEST SACRAMENTO PROJECT LEVEE RECONSTRUCTION CONTRACT 'B'" JULY 1999.
 - CONSTRUCT NEW 3:1 WATERSIDE SLOPE BETWEEN 37+40 AND 38+20 FROM ACCESS RAMP DOWN TO DEGRADE ELEVATION 30.0 ONLY. DO NOT EXTEND NEW SLOPE TO EXISTING TOE. PROVIDE A GRADUAL 20' TRANSITION TO AVOID AND PROTECT ADJACENT TREE.



TYPICAL SECTION STA 39+75 TO 58+50

- NOTES:
- EXISTING DRAINAGE LAYER TAKEN FROM RECORD DRAWINGS FOR "WEST SACRAMENTO PROJECT LEVEE RECONSTRUCTION CONTRACT 'B'" JULY 1999.

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Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
 VERTICAL DATUM IS NAVD 88
 VERTICAL DATUM CORRECTION EQUATION:
 NAVD 88 = NCV29 + 2.6'



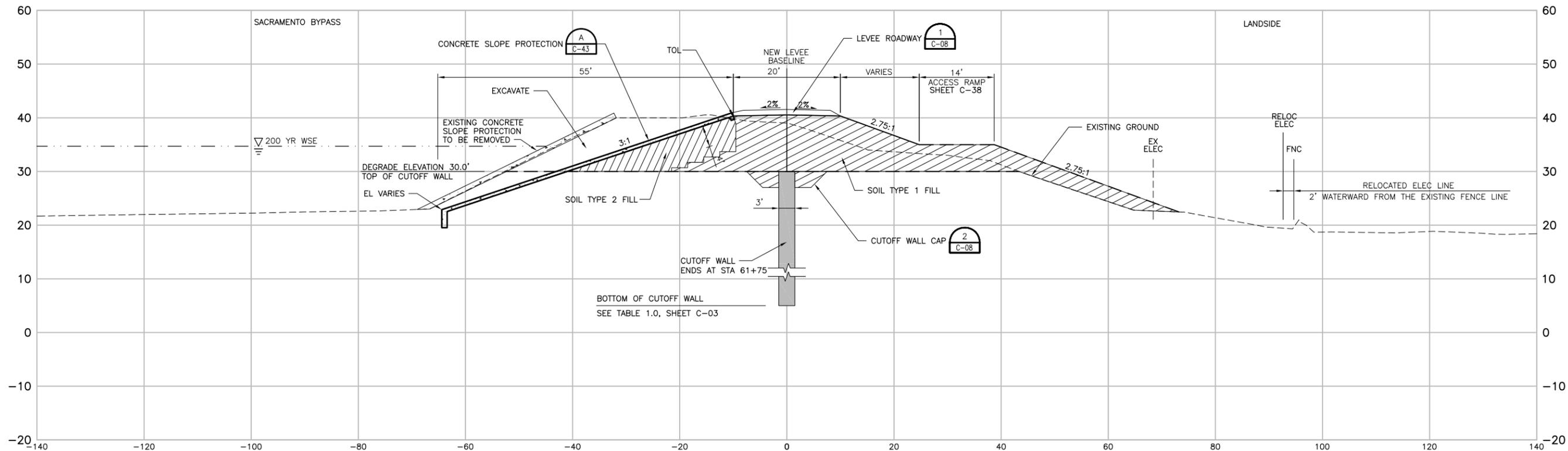
Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
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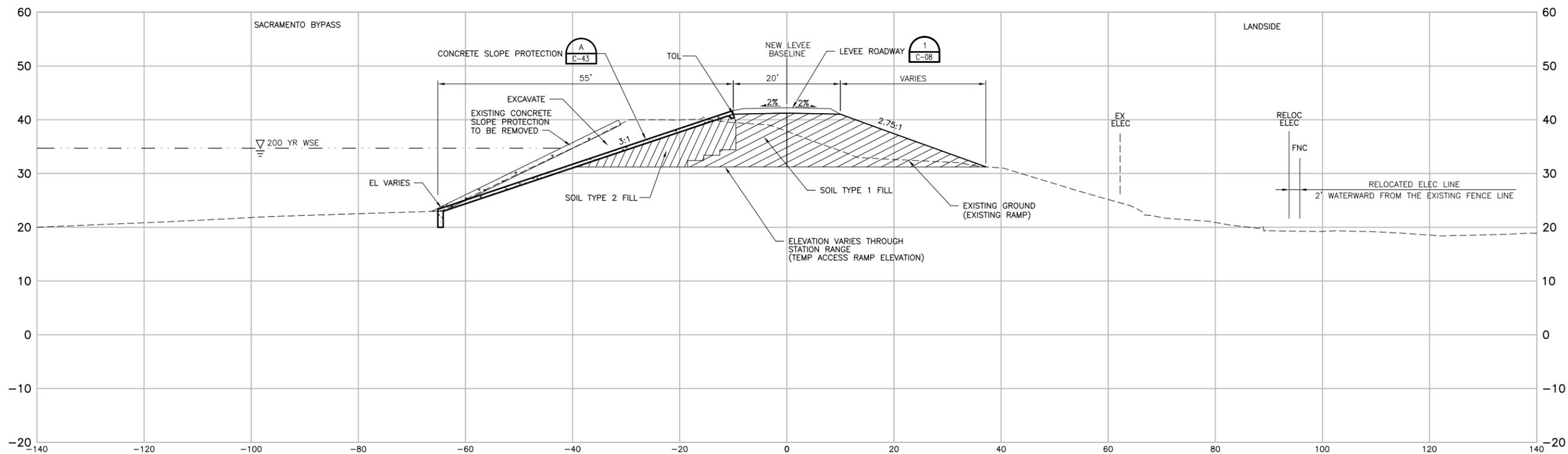
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Date	APRIL 2011	Project No.	007436-68914-141	Drawn No.		Issue	
Scale	1" = 10'	File Name	40-01C-005.dwg	C-05		X	

ATTACHMENT E - Typical Sections



TYPICAL SECTION STA 58+50 TO 62+80



TYPICAL SECTION STA 62+80 TO 63+50±

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Issue No.	Description	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.
	ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION:
NAVD 88 = NCV29 + 2.6'



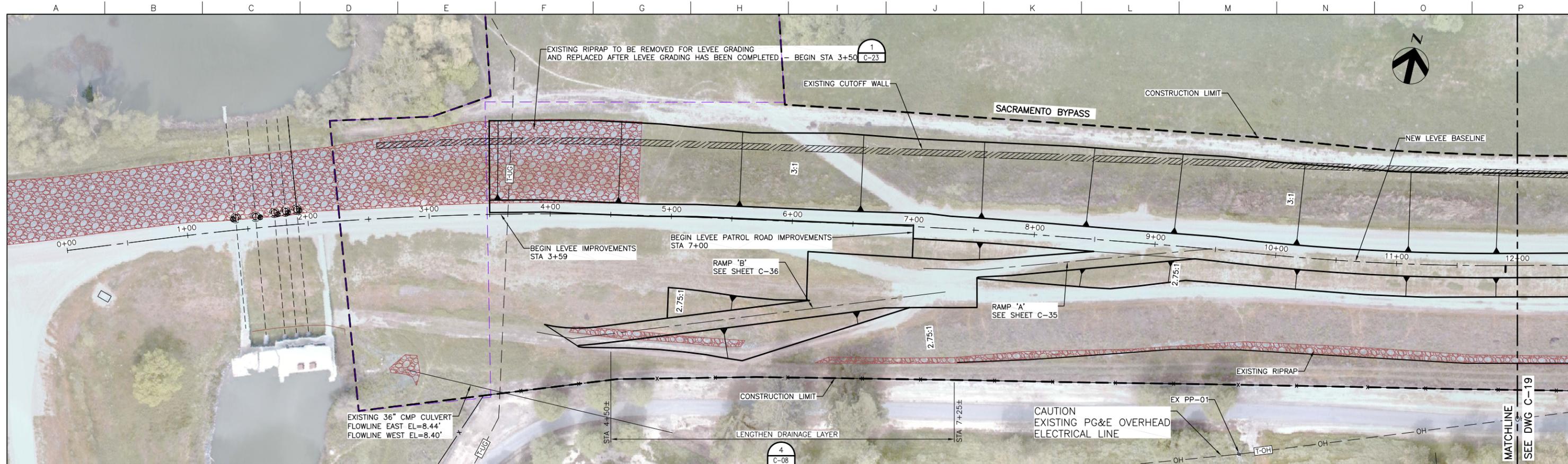
Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

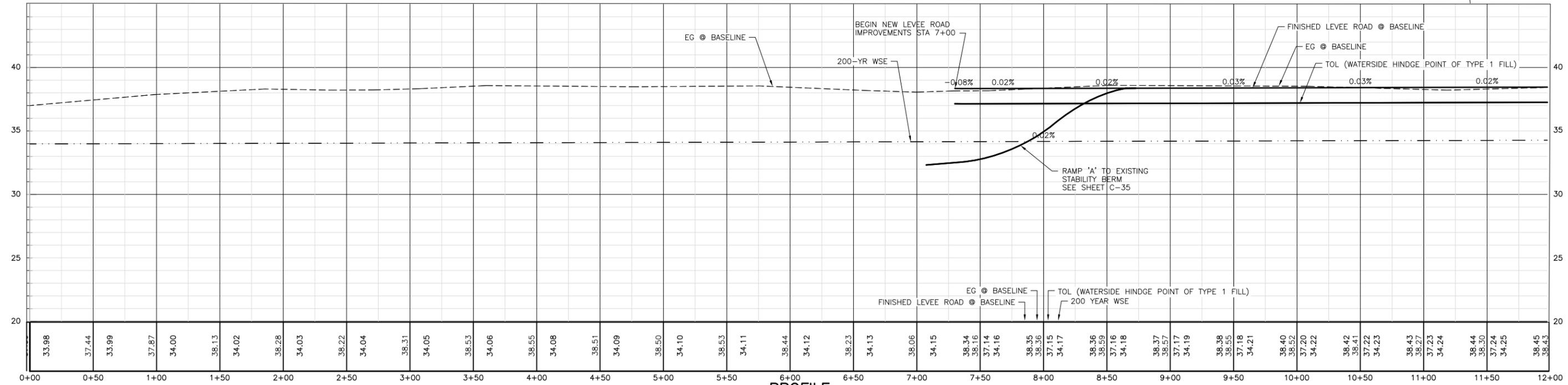
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SACRAMENTO BYPASS
TYPICAL LEVEE SECTIONS
STA 58+50 TO 63+50**

Date	APRIL 2011	Project No.	007436-68914-141	Drawn No.		Issue	
Scale	1" = 10'	File Name	41-01C-006.dwg			C-06	X

ATTACHMENT E - Typical Sections



PLAN
SCALE: 1" = 40'



PROFILE
SCALE: HORIZ: 1" = 40'
VERT: 1" = 4'

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ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION:
NAVD 88 = NGVD29 + 2.6'



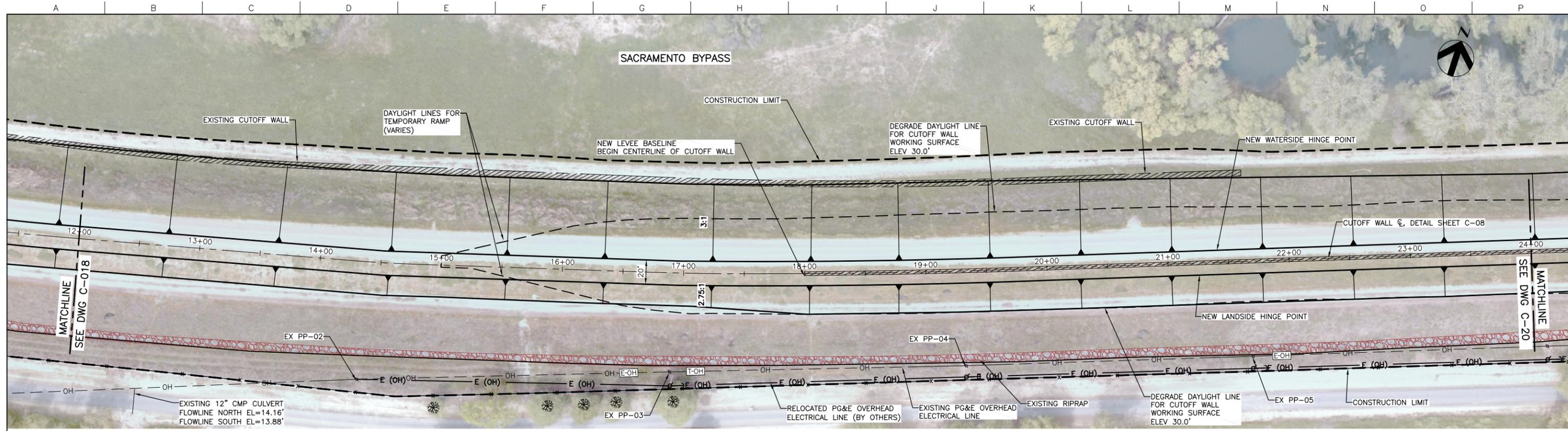
Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

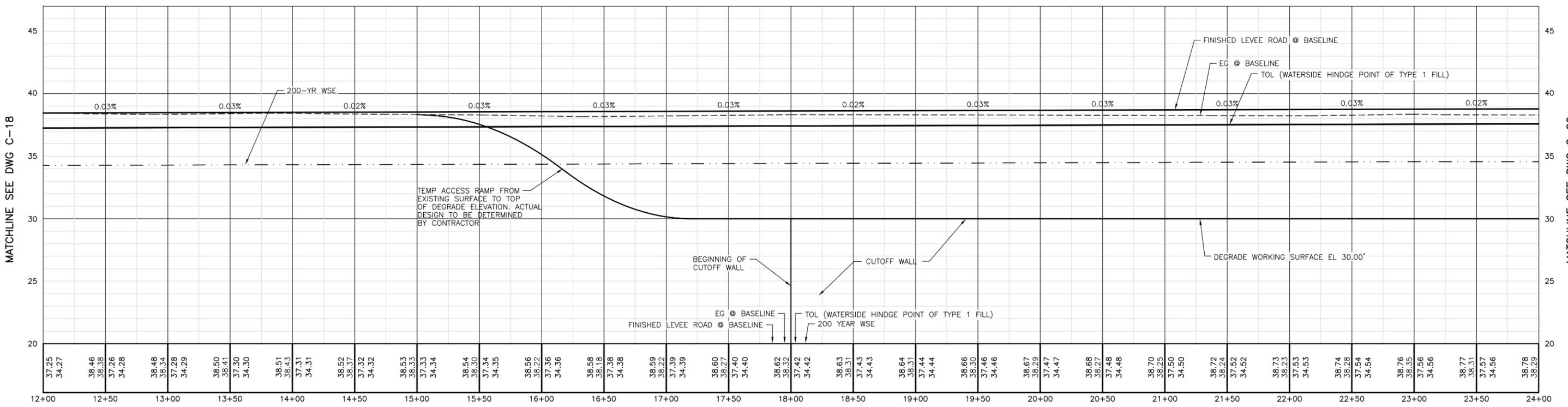
**WEST SACRAMENTO EIP - C.H.P. ACADEMY
SACRAMENTO BYPASS
LEVEE - PLAN AND PROFILE
STA 0+00 TO 12+00**

Date	APRIL 2011	Project No.	007436-68914-141	Drawing No.	C-18	Issue	X
Scale	1" = 40'	File Name	46-01C-018.dwg				

ATTACHMENT F - Design Plans



PLAN
SCALE: 1" = 40'



PROFILE
SCALE: HORIZ: 1" = 40'
VERT: 1" = 4'

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04-08-11 A COLLINS 11:01:32

ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION:
NAVD 88 = NGVD29 + 2.6'

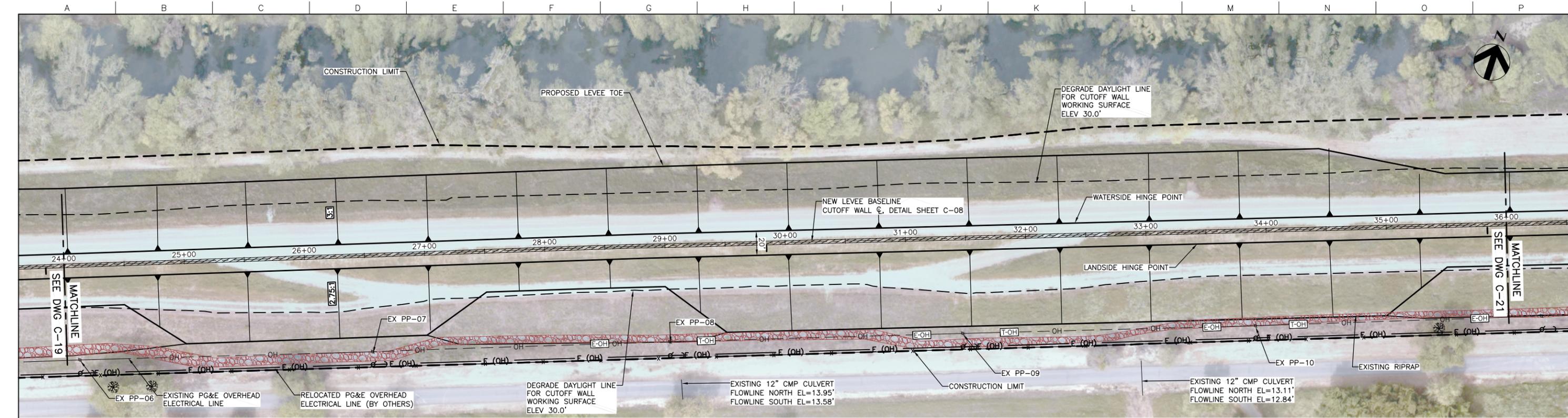


Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

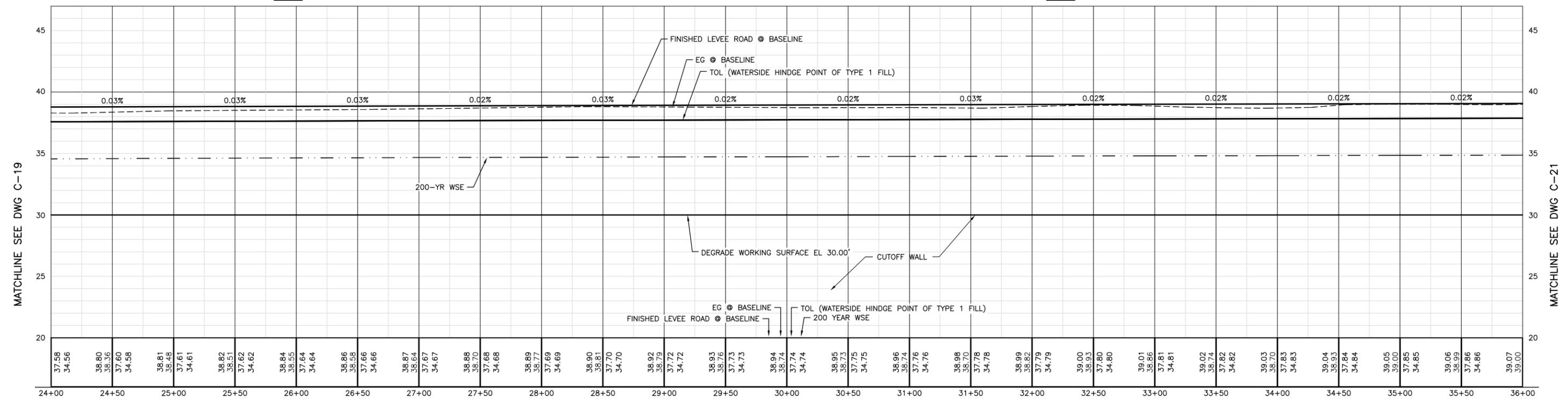
West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

WEST SACRAMENTO EIP - C.H.P. ACADEMY LEVEE - PLAN AND PROFILE STA 12+00 TO 24+00	
Date	APRIL 2011
Project No.	007436-68914-141
Scale	1" = 40'
File Name	47-01C-019.dwg
Drawing No.	C-19
Issue	X

ATTACHMENT F - Design Plans



PLAN
SCALE: 1" = 40'



PROFILE
SCALE: HORIZ: 1" = 40'
VERT: 1" = 4'

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ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

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NAVD 88 = NGVD29 + 2.6'



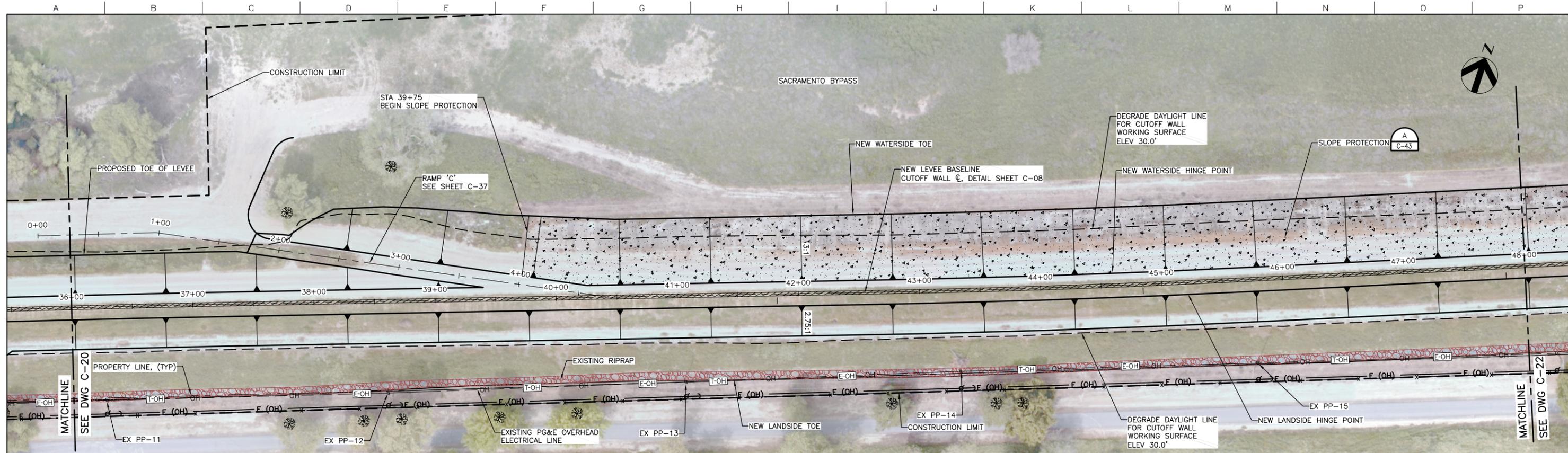
Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

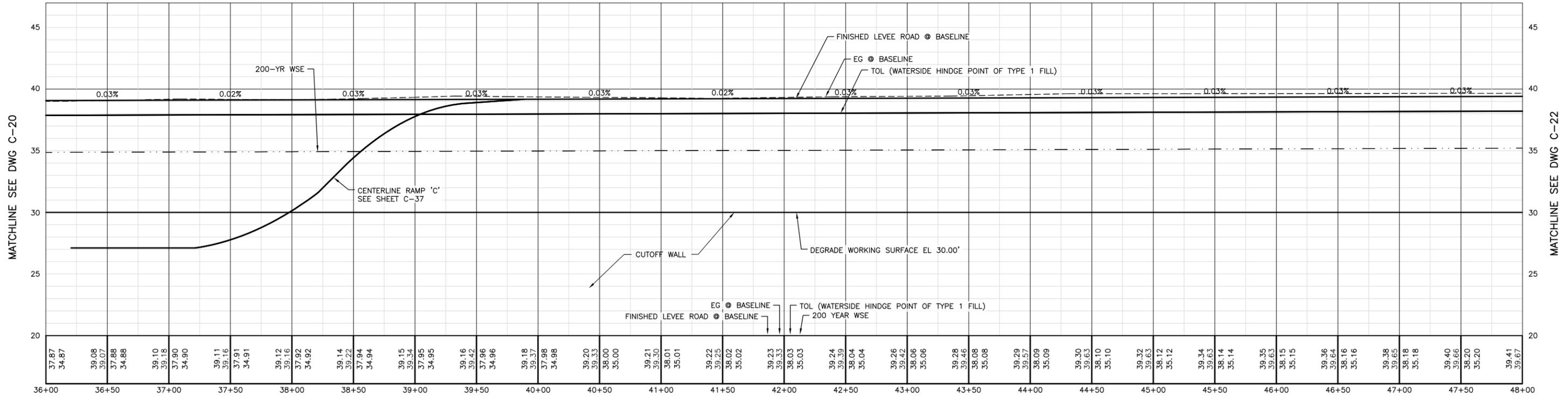
**WEST SACRAMENTO EIP - C.H.P. ACADEMY
SACRAMENTO BYPASS
LEVEE - PLAN AND PROFILE
STA 24+00 TO 36+00**

Date	APRIL 2011	Project No.	007436-68914-141	Drawn No.		Issue	
Scale	1" = 40'	File Name	48-01C-020.dwg	C-20		X	

ATTACHMENT F - Design Plans



PLAN
SCALE: 1" = 40'



PROFILE
SCALE: HORIZ: 1" = 40'
VERT: 1" = 4'

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Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

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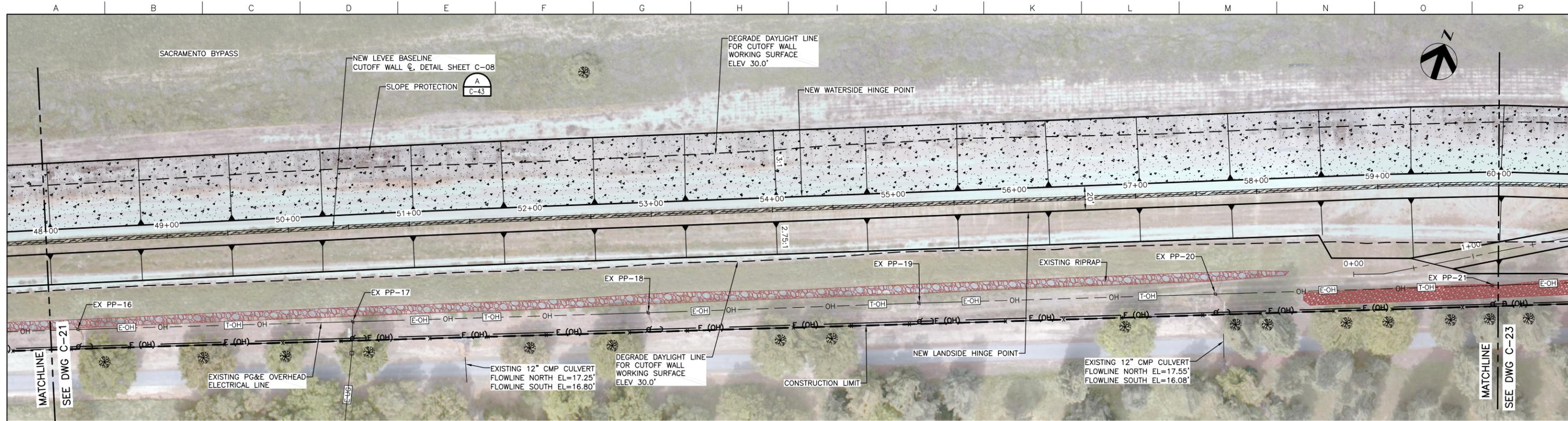
Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

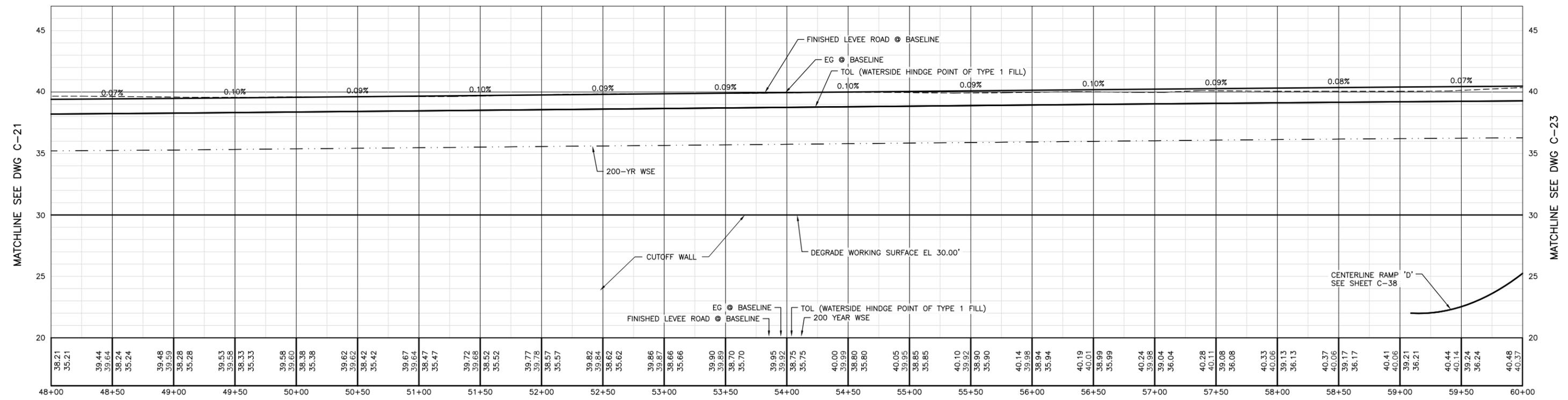
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Date	APRIL 2011	Project No.	007436-68914-141	Drawn No.		Issue	
Scale	1" = 40'	File Name	49-01C-021.dwg	C-21		X	

ATTACHMENT F - Design Plans



PLAN
SCALE: 1" = 40'



PROFILE
SCALE: HORIZ: 1" = 40'
VERT: 1" = 4'

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ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION: NAVD 88 = NGVD29 + 2.6'



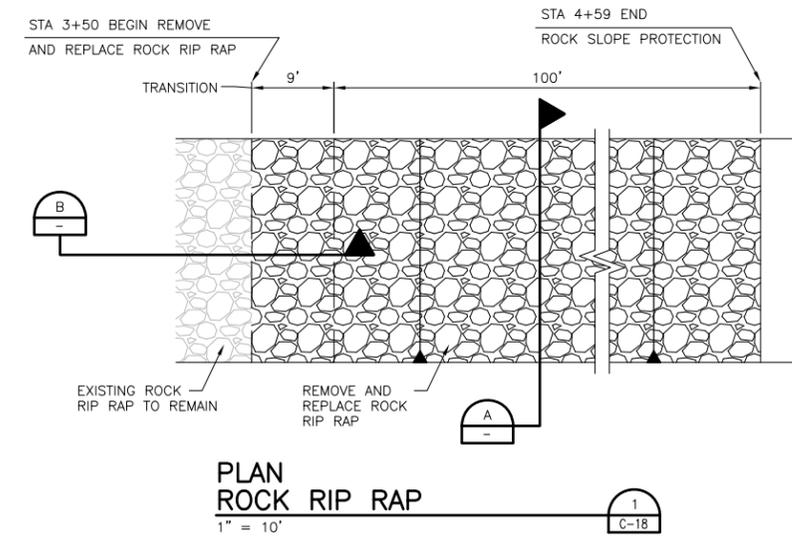
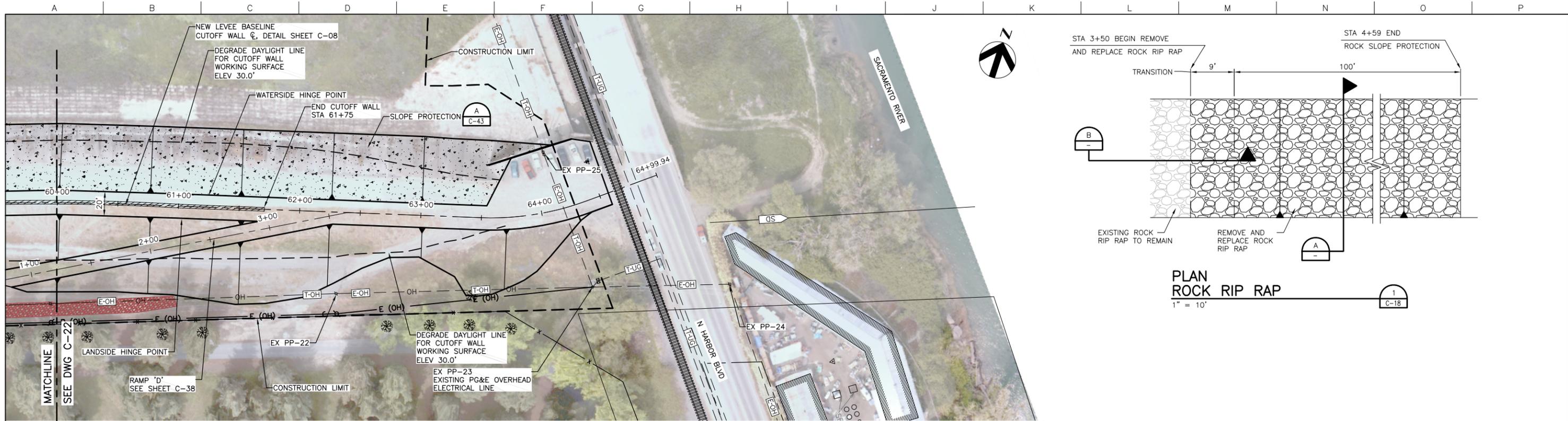
Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
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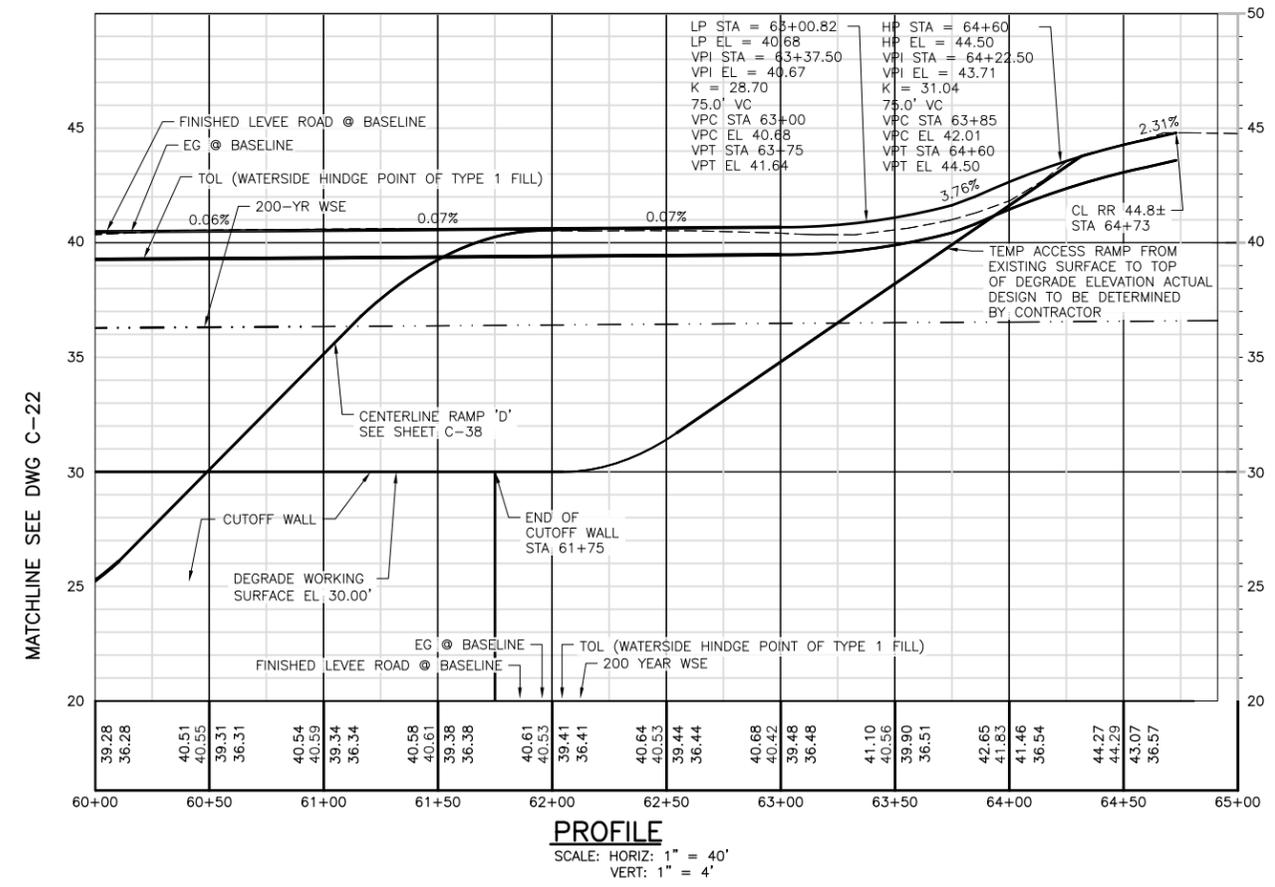
WEST SACRAMENTO EIP - C.H.P. ACADEMY SACRAMENTO BYPASS LEVEE - PLAN AND PROFILE STA 48+00 TO 60+00

Date	APRIL 2011	Project No.	007436-68914-141	Drawing No.	C-22	Issue	X
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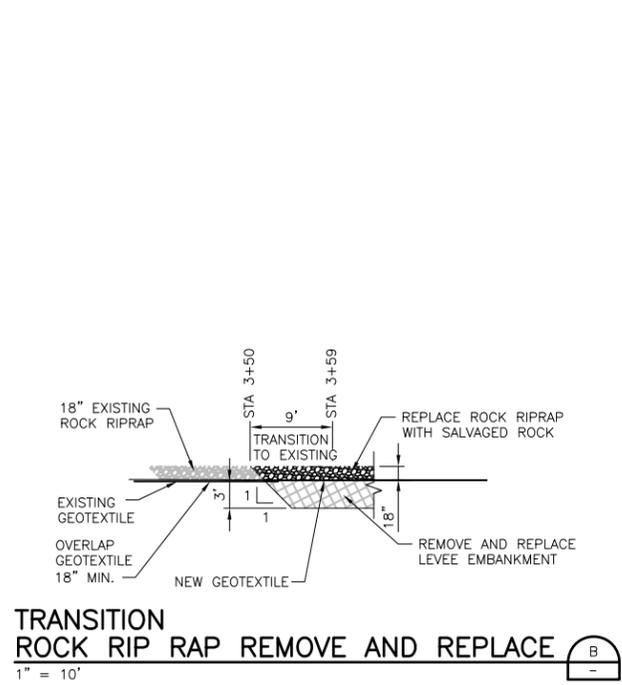
ATTACHMENT F - Design Plans



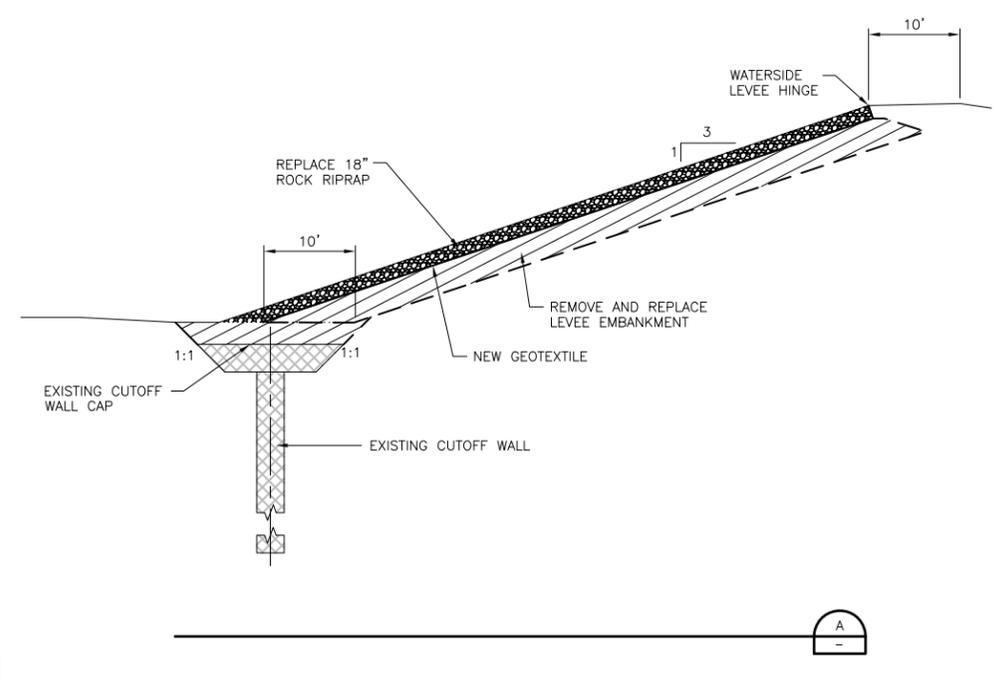
PLAN
SCALE: 1" = 40'



PROFILE
SCALE: HORIZ: 1" = 40'
VERT: 1" = 4'



TRANSITION ROCK RIP RAP REMOVE AND REPLACE
1" = 10'



A
1" = 10'

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04-08-11 ACOLLINS 11:27:14

Issue No.	Description	Date	Drawn	Checked	Responsible	Project Manager
1	ISSUED FOR BIDS	04/08/11	VFR	JGH	RCH/MJV	EEN

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION:
NAVD 88 = NGVD29 + 2.6'



Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

Date	APRIL 2011	Project No.	007436-68914-141	Drawing No.	C-23	Issue	X
Scale	1" = 40'	File Name	51-01C-023.dwg				

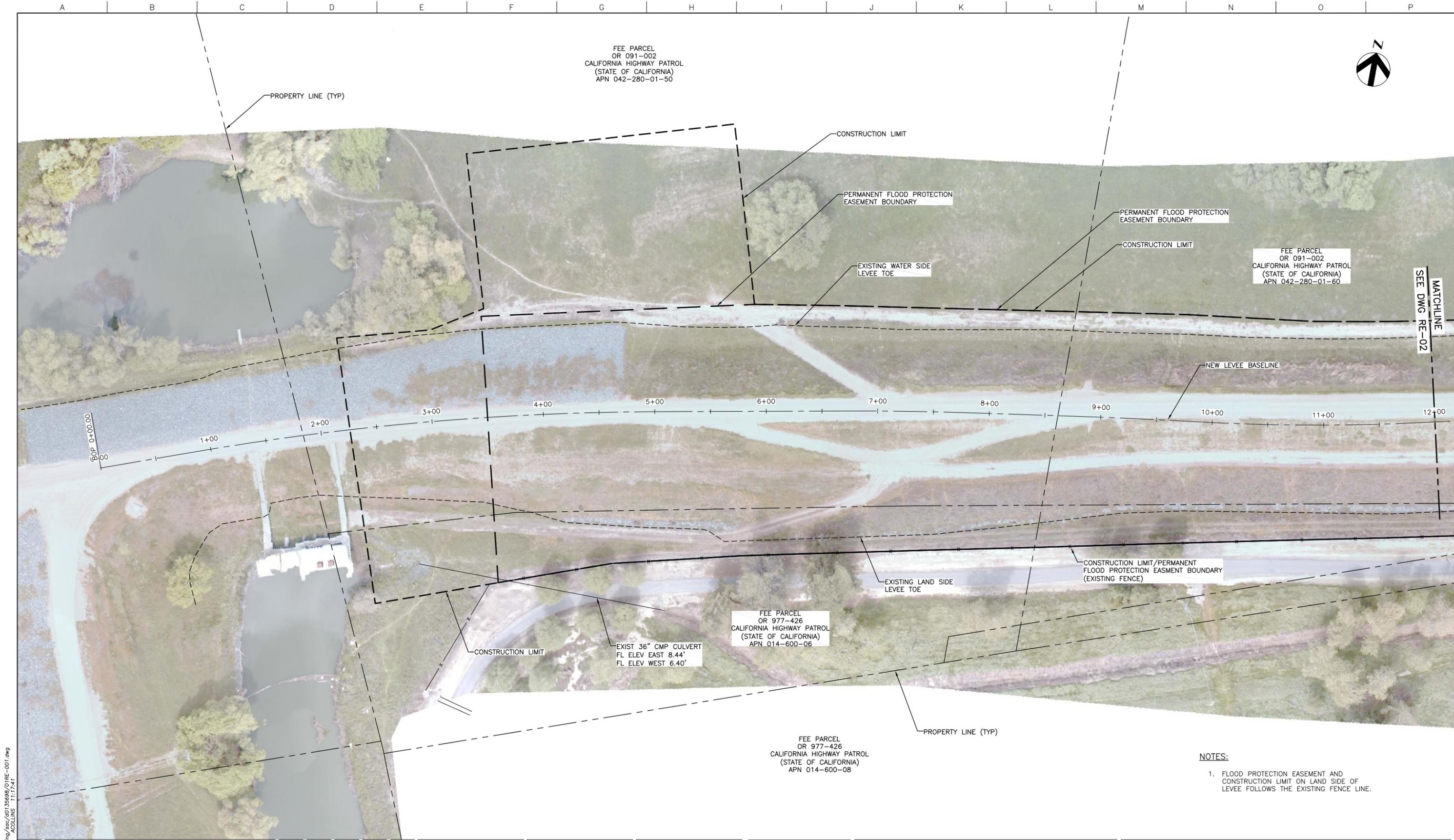
ATTACHMENT F - Design Plans

Table 4.2.3-8 - Project Features

Beginning Station	Ending Station	Existing Mitigation	Proposed Mitigation
3+00	18+00	Waterside Cutoff Wall and Drained Stability Berm	Waterside slope flattening to 3H:1V and placement of minimum 12-foot horizontal thickness of new compacted impervious levee embankment fill on waterside slope
18+00	21+00	Waterside Cutoff Wall and Drained Stability Berm	SB ⁽²⁾ cutoff wall, estimated tip elevation of cutoff wall: -40 Waterside slope flattening to 3H:1V
21+00	40+00	Drained Stability Berm	SB ⁽²⁾ cutoff wall, estimated tip elevation of cutoff wall: -40 Waterside slope flattening to 3H:1V
40+00	53+00	Drained Stability Berm	SB ⁽²⁾ cutoff wall, estimated tip elevation of cutoff wall: +5 Waterside slope flattening to 3H:1V
53+00	61+75 ³	Undrained Stability Berm	SB ⁽²⁾ cutoff wall, estimated tip elevation of cutoff wall: +5 Waterside slope flattening to 3H:1V

Notes:

- (1) Seepage mitigation measures based on analysis using 200-Year and 200-Year +3 feet design WSE's. Actual cutoff wall tip elevation will depend on material encountered at depth.
- (2) SB= Soil-bentonite
- (3) The final geotechnical basis of design report evaluated a cutoff wall ending at Station 64+50. Site civil design constraints required terminating the wall at Station 61+75.



FEE PARCEL
OR 091-002
CALIFORNIA HIGHWAY PATROL
(STATE OF CALIFORNIA)
APN 042-280-01-50

FEE PARCEL
OR 091-002
CALIFORNIA HIGHWAY PATROL
(STATE OF CALIFORNIA)
APN 042-280-01-60

FEE PARCEL
OR 977-426
CALIFORNIA HIGHWAY PATROL
(STATE OF CALIFORNIA)
APN 014-600-06

FEE PARCEL
OR 977-426
CALIFORNIA HIGHWAY PATROL
(STATE OF CALIFORNIA)
APN 014-600-08

MATCHLINE
SEE DWG RE-02

- NOTES:**
- FLOOD PROTECTION EASEMENT AND CONSTRUCTION LIMIT ON LAND SIDE OF LEVEE FOLLOWS THE EXISTING FENCE LINE.

C:\mwork\p\p\0135698\01RE-001.dwg
03-03-11 ACOLLINS 11:17:41

ISSUED FOR BIDS	03/??/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION:
NAVD 88 = NCV29 + 2.6'

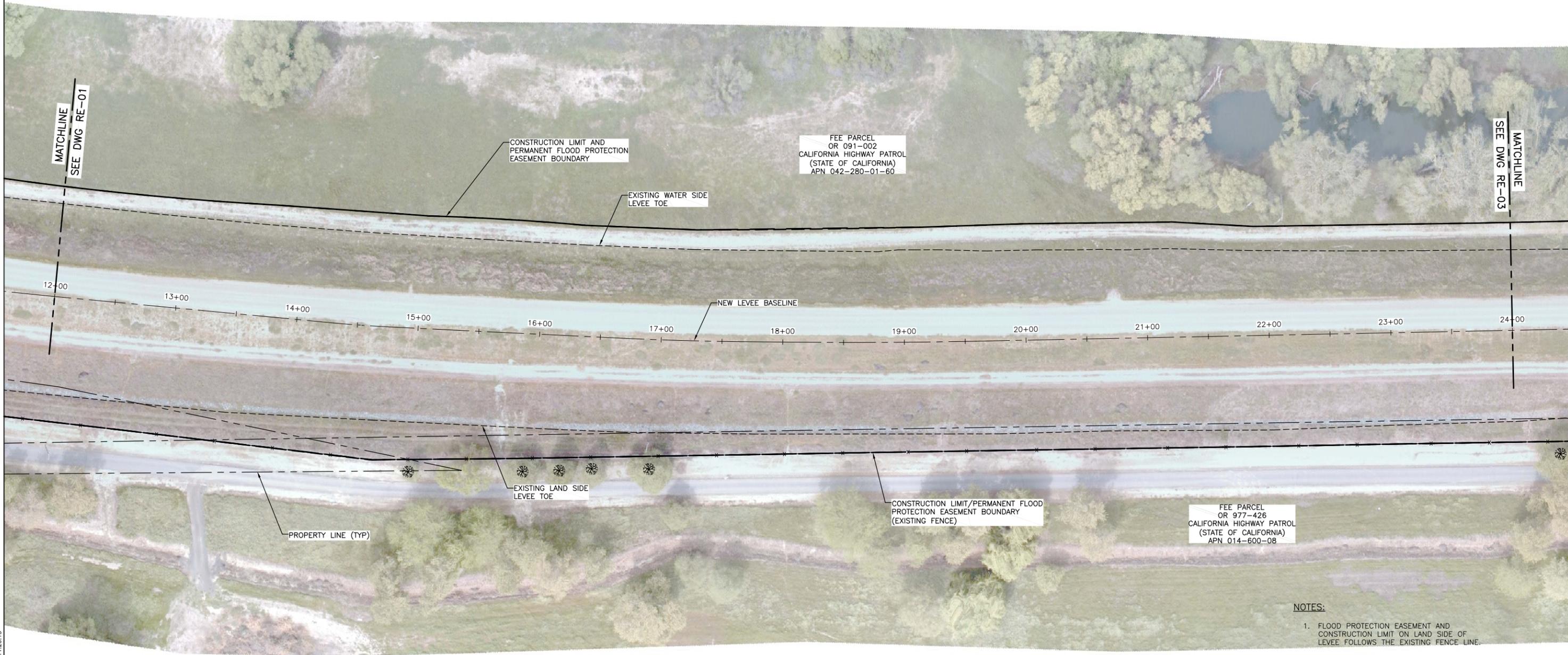


Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

WEST SACRAMENTO EIP - C.H.P. ACADEMY SACRAMENTO BYPASS REAL ESTATE STA 0+00 TO 12+00			
Date	MARCH 2011	Project No.	007436-68914-141
Scale	1" = 40'	File Name	01RE-001.dwg
Drawing No.	RE-01	Issue	X

ATTACHMENT H - Real Estate Drawings



- NOTES:**
1. FLOOD PROTECTION EASEMENT AND CONSTRUCTION LIMIT ON LAND SIDE OF LEVEE, FOLLOWS THE EXISTING FENCE LINE.

C:\working\p\0135698\01RE-002.dwg 03-03-11 ACOLLINS 11:20:13

ISSUED FOR BIDS	03/??/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
 VERTICAL DATUM IS NAVD 88
 VERTICAL DATUM CORRECTION EQUATION:
 NAVD 88 = NGVD29 + 2.6'

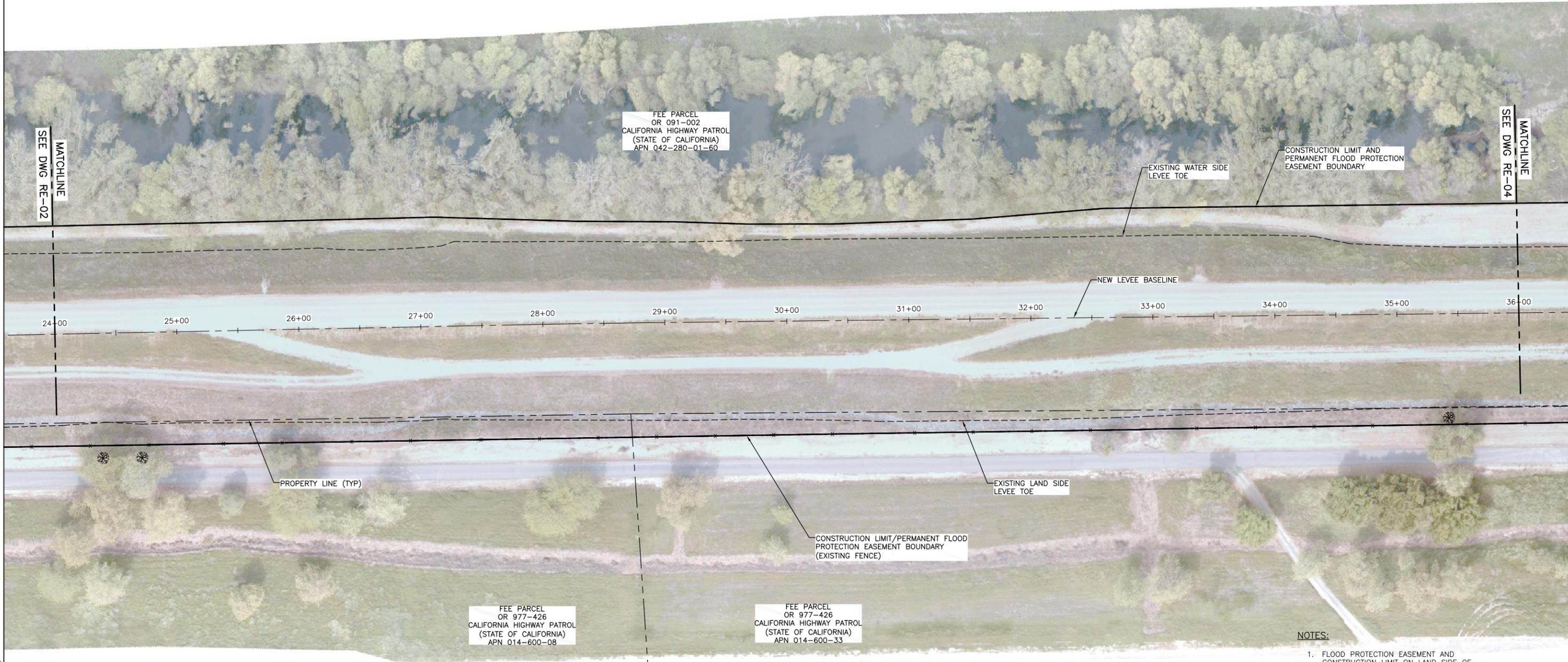


Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
 Levee Improvement Program
 Early Implementation Project
 C.H.P. Academy Site - Sacramento Bypass

**WEST SACRAMENTO EIP - C.H.P. ACADEMY
 SACRAMENTO BYPASS
 REAL ESTATE
 STA 12+00 TO 24+00**

Date	MARCH 2011	Project No.	007436-68914-141	Drawing No.	RE-02	Issue	X
Scale	1" = 40'	File Name	01RE-002.dwg				



NOTES:
1. FLOOD PROTECTION EASEMENT AND CONSTRUCTION LIMIT ON LAND SIDE OF LEVEE FOLLOWS THE EXISTING FENCE LINE.

C:\mwork\p\p\01135698\01RE-003.dwg 03-03-11 ACOLLINS 11:22:27

ISSUED FOR BIDS	03/??/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION:
NAVD 88 = NGVD29 + 2.6'



Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
Levee Improvement Program
Early Implementation Project
C.H.P. Academy Site - Sacramento Bypass

**WEST SACRAMENTO EIP - C.H.P. ACADEMY
SACRAMENTO BYPASS
REAL ESTATE
STA 24+00 TO 36+00**

Date	MARCH 2011	Project No.	007436-68914-141	Drawing No.	RE-03	Issue	X
Scale	1" = 40'	File Name	01RE-003.dwg				

A B C D E F G H I J K L M N O P

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- NOTES:**
- FLOOD PROTECTION EASEMENT AND CONSTRUCTION LIMIT ON LAND SIDE OF LEVEE FOLLOWS THE EXISTING FENCE LINE.

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Issue No.	Description	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.
	ISSUED FOR BIDS	03/??/11	VFR	JGH	RCH/MJV	EEN

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
 VERTICAL DATUM IS NAVD 88
 VERTICAL DATUM CORRECTION EQUATION:
 NAVD 88 = NGVD29 + 2.6'



Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

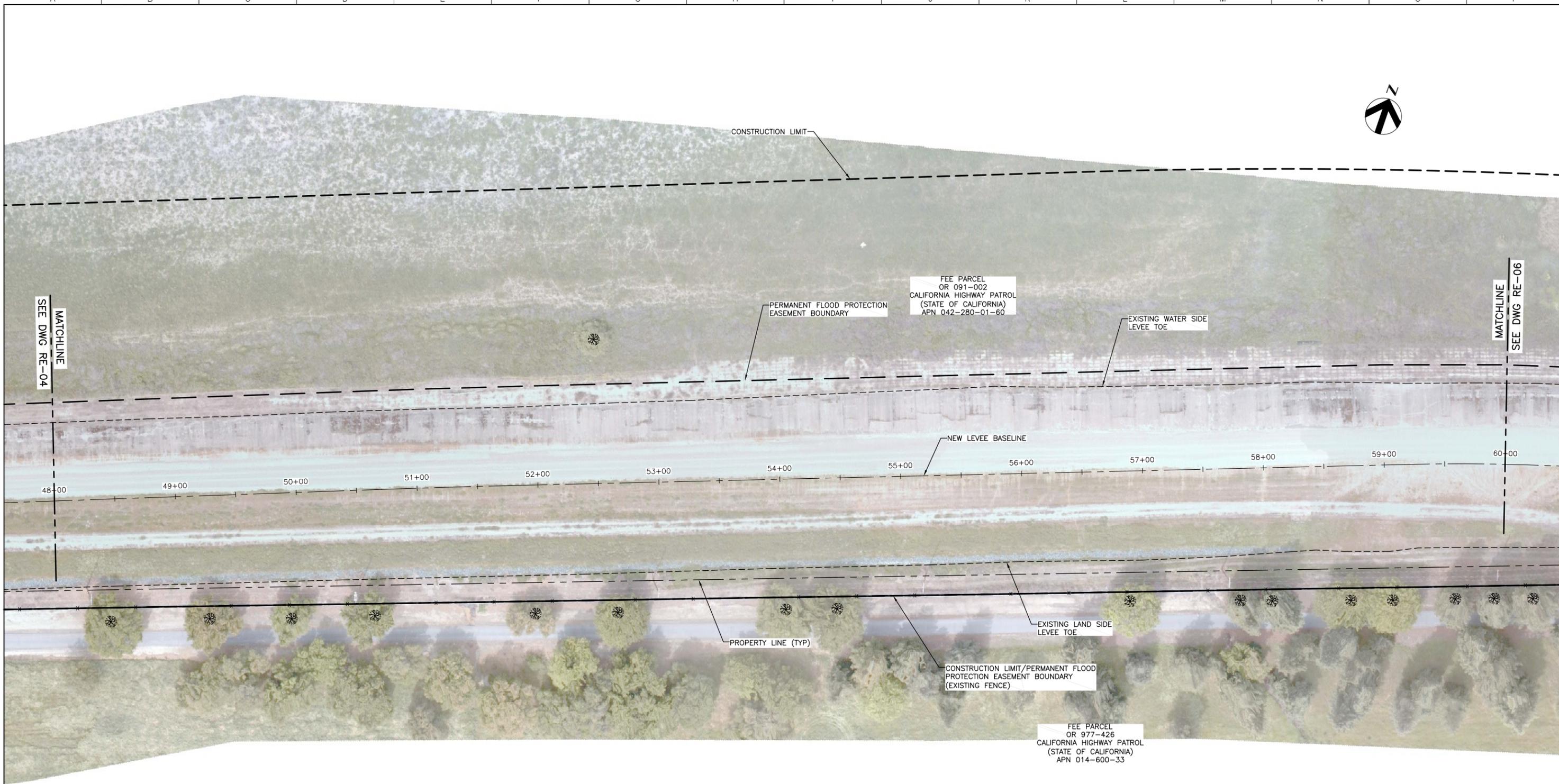
West Sacramento Area Flood Control Agency
 Levee Improvement Program
 Early Implementation Project
 C.H.P. Academy Site - Sacramento Bypass

WEST SACRAMENTO EIP - C.H.P. ACADEMY SACRAMENTO BYPASS REAL ESTATE STA 36+00 TO 48+00			
Date	MARCH 2011	Project No.	007436-68914-141
Scale	1" = 40'	File Name	01RE-004.dwg
Drawing No.	RE-04	Issue	X

ATTACHMENT H - Real Estate Drawings

A B C D E F G H I J K L M N O P

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NOTES:

1. FLOOD PROTECTION EASEMENT AND CONSTRUCTION LIMIT ON LAND SIDE OF LEVEE FOLLOWS THE EXISTING FENCE LINE.

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ISSUED FOR BIDS	03/??/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
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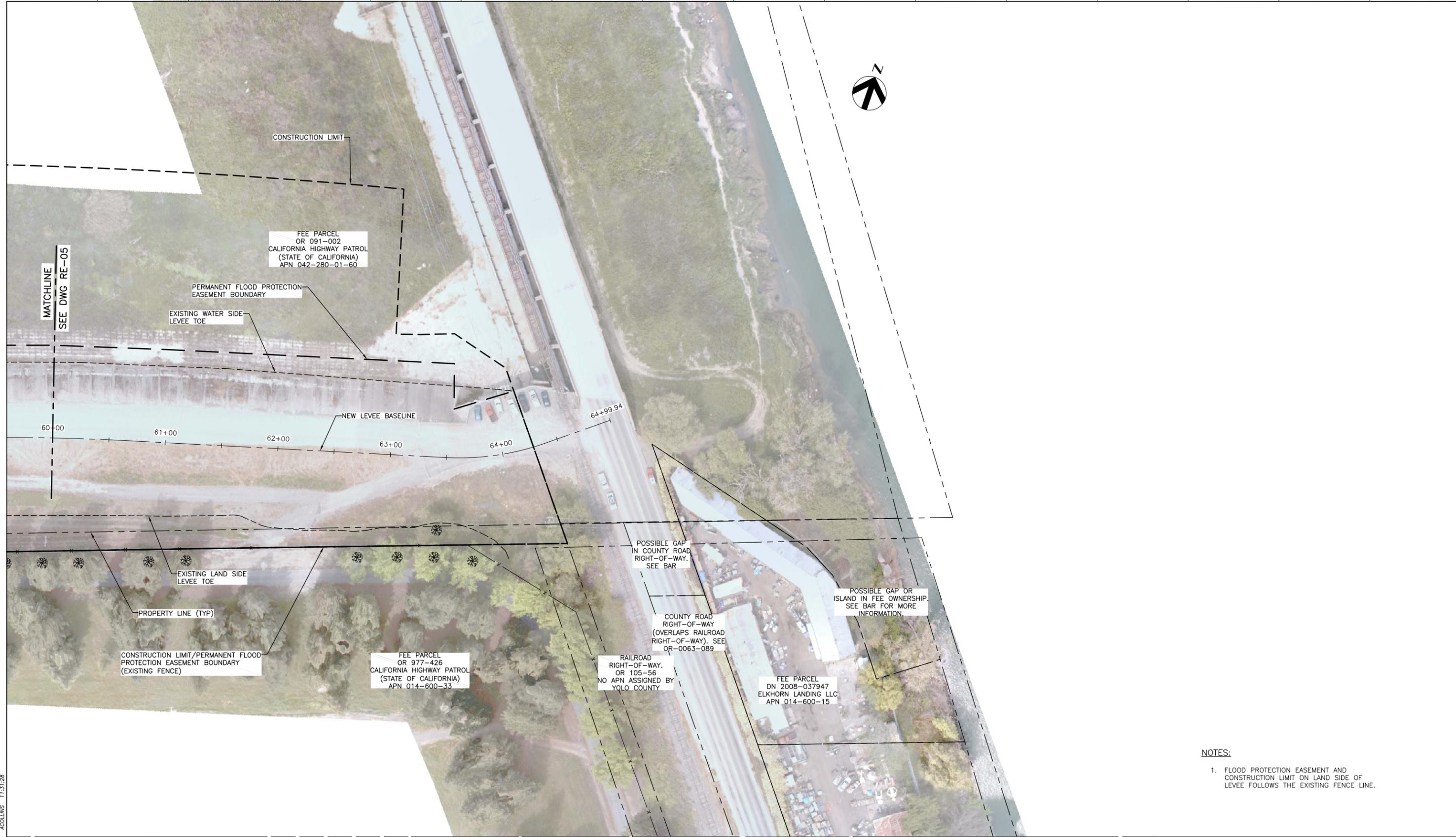
Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
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**WEST SACRAMENTO EIP - C.H.P. ACADEMY
 SACRAMENTO BYPASS
 REAL ESTATE
 STA 48+00 TO 60+00**

Date	MARCH 2011	Project No.	007436-68914-141	Drawing No.	RE-05	Issue	X
Scale	1" = 40'	File Name	01RE-005.dwg				

ATTACHMENT H - Real Estate Drawings



NOTES:
1. FLOOD PROTECTION EASEMENT AND CONSTRUCTION LIMIT ON LAND SIDE OF LEVEE FOLLOWS THE EXISTING FENCE LINE.

C:\mwork\p\p\0135698\01RE-006.dwg
03-03-11 ACOLLINS 1:31:28

ISSUED FOR BIDS	03/??/11	VFR	JGH	RCH/MJV	EEN
Issue No.	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HORIZONTAL DATUM IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 (NAD 83)
VERTICAL DATUM IS NAVD 88
VERTICAL DATUM CORRECTION EQUATION:
NAVD 88 = NCV29 + 2.6'



Project Manager	E. NAGY
Designed	M. VECCHIO
Checked	J. HESS
Drawn	V. RUSSO

West Sacramento Area Flood Control Agency
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WEST SACRAMENTO EIP - C.H.P. ACADEMY SACRAMENTO BYPASS REAL ESTATE STA 60+00 TO 65+00			
Date	MARCH 2011	Project No.	007436-68914-141
Scale	1" = 40'	File Name	01RE-006.dwg
Drawing No.	RE-06	Issue	X