

**Meeting of the Central Valley Flood Protection Board
June 24, 2011**

**Staff Report – Encroachment Permit
Reclamation District No. 17
Landscape Planting, San Joaquin County**

1.0 – ITEM

Consider approval of Permit No. 18518-A (Attachment B)

2.0 – APPLICANT

Reclamation District No. 17

3.0 – LOCATION

This project is the second of three that is located in Lathrop, south of Howard Road and west of Interstate 5.

(San Joaquin River, San Joaquin County, see Attachment A)

4.0 – DESCRIPTION

This is the second of three previously constructed seepage berms that the applicant proposes to install landscape planting, irrigation improvements, Shoreblock (articulated concrete-block-mat covering the exposed gravel portions of the seepage berm), 6-inch-high concrete curb at the base of articulated concrete-block-mat, asphalt-concrete bicycle/pedestrian trail adjacent to the curb, 3 bollards on the bicycle/pedestrian trail and concrete mow strips for the previously constructed landside seepage berm which is approximately 2,350-linear-feet-long and 65-foot-wide, between Stations 700+00 and 723+47, on the right (east) bank levee of the San Joaquin River.

5.0 – PROJECT ANALYSIS

The work being considered for this permit is the landscaping portion of a previously approved project authorized under Permit No. 18518 issued October 8, 2009 which was

for the seepage berm only with no landscaping authorized. All proposed work being considered under this permit is landward of the landside levee slope and outside of the template levee prism. The irrigation improvements include PVC piping varying from 3/4-inch-diameter to 2-1/2-inch-diameter both lateral and parallel to the levee. The parallel piping that is the closest to the levee toe is 1-inch and 1-1/4-inch-diameter being approximately 2-3 feet landward from the levee toe in alternating reaches, various types of pop-up sprinklers and drip irrigation systems. All control valves are located outside of the jurisdictional area of this permit. All piping in the seepage berm will be buried at a maximum depth of 12-inches and 18-inches outside of the seepage berm. The planting plan conforms to Title 23 Section 131 Vegetation standards.

The placement of the Shoreblock articulated concrete-block-mat system has a positive impact of protecting, in place, the exposed gravel areas of the existing seepage berm.

The concrete curb adjacent to the Shoreblock articulated concrete-block-mat system, the asphalt concrete bicycle/pedestrian trail, the 3 bollards and concrete mow strips will not have an adverse impact on inspection, maintenance or flood fight.

5.1 – Hydraulic Analysis

A hydraulic analysis is not needed as the proposed project is entirely on the landside of the levee and seepage berm.

5.2 – Geotechnical Analysis

A geotechnical analysis is not needed because the proposed project does not require excavating into the levee and no deeper than 12-inches in the seepage berm.

5.3 – Additional Staff Analysis/Comments

The only technical concern of the aforementioned encroachments is the irrigation improvements. The concern is that during the non-flood season the irrigation improvements introduce a new water source at this site (artificial rain) in an unknown quantity. The permit will include language that requires the permittee to monitor the existing underseepage collection system during operation of the irrigation improvements by submitting to a plan for monitoring that is acceptable to the Board with consideration for any mitigation needed to assure the system operates as designed at all times.

This work is for completion of a portion of the Reclamation District No. 17's 100-Year Levee Seepage Project which was authorized through Permit Nos. 18515, 18516, 18517, 18518, 18519, 18521, 18522 and 18523 issued in October, 2009.

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

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

- Reclamation District No. 17 is the applicant and therefore endorses the project.
- The U. S. Army Corps of Engineers 208.10 comment letter has not yet been received for this application. Upon receipt of a favorable letter and review by Board staff the letter will be incorporated into the permit as Exhibit A.

7.0 – CEQA ANALYSIS

Board staff has prepared the following CEQA Findings:

The Board, as a Responsible Agency under CEQA, has reviewed an Initial Study and Proposed Mitigated Negative Declaration (IS/MND), a Mitigation Monitoring and Reporting Program, and a Notice of Determination (SCH No. 2009062021, June 2009) for the Phase - RD 17 100-Year Levee Seepage Project, prepared by the lead agency, Reclamation District 17. These documents including project design and the District resolution may be viewed or downloaded from the Central Valley Flood Protection Board website at <http://www.cvpfb.ca.gov/meetings/2011/7-22-2011.cfm> under a link for this agenda item. The documents are also available for review in hard copy at the Board and Reclamation District's offices.

The District, as the lead agency, determined that the project would not have a significant effect on the environment and adopted Resolution 2009-02 on July 10, 2009 which approved the project and adopted the Mitigation Monitoring and Reporting Program. The District also filed a Notice of Determination on July 10, 2009 with the State Clearinghouse and San Joaquin County Records Office.

Board staff finds that although the proposed project could have a potentially significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. The project proponent has incorporated mandatory mitigation measures into the project

plans to avoid identified impacts or to mitigate such impacts to a point where no significant impacts will occur. These mitigation measures are included in the project proponent's Mitigation Monitoring and Reporting Program and address impacts to air quality, biological resources, cultural resources, geology and soils, hazardous materials, hydrology and water quality, and noise. The description of the mitigation measures are further described in the adopted Mitigation Monitoring Program.

8.0 – SECTION 8610.5 CONSIDERATIONS

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

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

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

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

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

Effects from the proposed project on the State Plan of Flood Control will be insignificant.

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

There will be no effects from reasonable projected future events on the proposed project.

9.0 – STAFF RECOMMENDATION

Staff recommends that the Board determine the project be exempt from CEQA, approve Permit No. 18518-A conditioned upon receipt of a USACE 208.10 letter of determination confirming that the Corps has no objection to the project, and direct the Executive Officer to take necessary actions to execute the permit.

10.0 – LIST OF ATTACHMENTS

- A. Location Maps and Photos
- B. Draft Permit No. 18518-A
- C. Planting and Irrigation Plans

Design Review:	Steve Dawson
Environmental Review:	Andrea Mauro and James Herota
Document Review:	Curt Taras P.E., Len Marino P.E.

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100-YEAR LEVEE SEEPAGE
REPAIR PHASE II
RECLAMATION DISTRICT 17
UPDATED SEPTEMBER 23, 2009

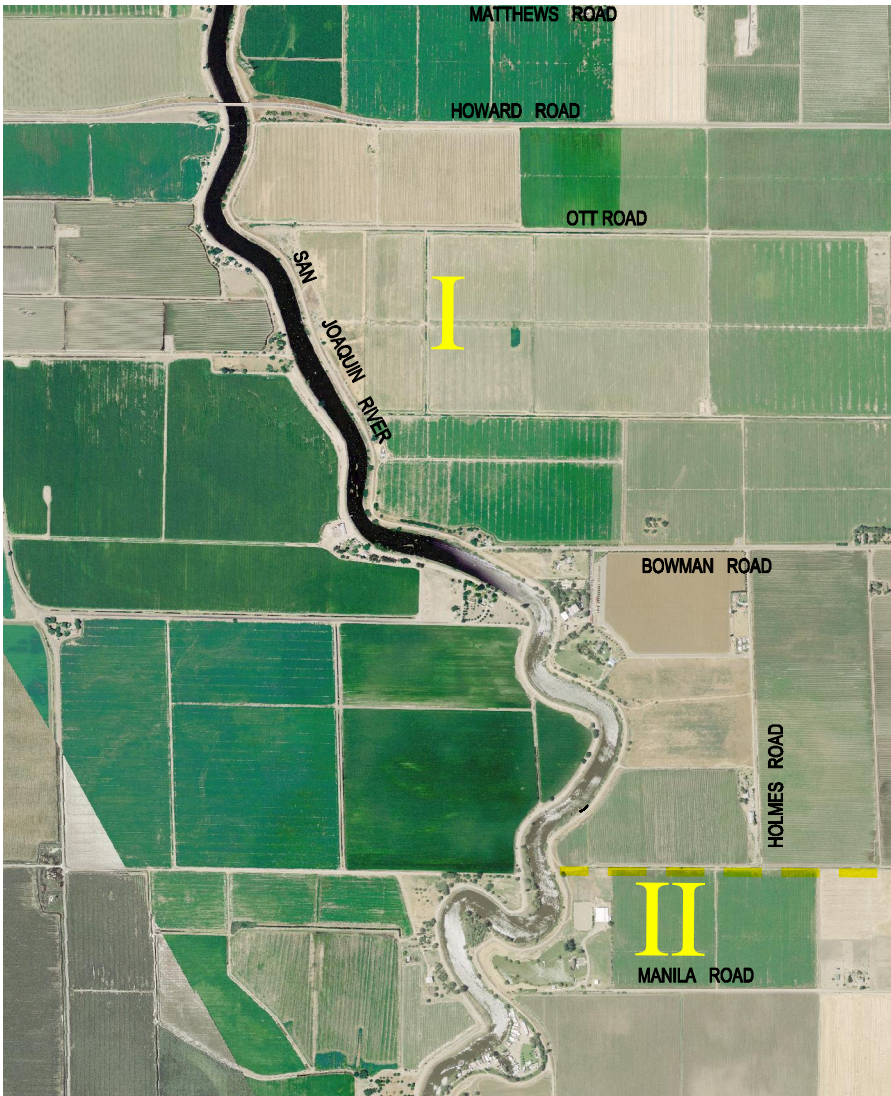
**KJELSEN
SINNOCK
NEUDECK
INC.** Consulting Engineers
and Land Surveyors
Post Office Box 844
711 N. Pershing Avenue
Stockton, CA 95201-0844
Office: (209) 946-0268
Fax: (209) 946-0296
E-mail: KSN@ksninc.com

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142B FRANKLIN DR, PLEASANTON, CA 94588 (925)225-0690

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LEGEND

PHASE II - 100-YR AREA PROJECT ELEMENTS



Attachment A
PHASE II
ELEMENT VIa-2

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ELEMENT VIa-2



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DRAFT

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

PERMIT NO. 18518-A BD

This Permit is issued to:

Reclamation District 17
PO Box 1461
Stockton, California 95201

To install landscape planting and irrigation improvements for the previously constructed landside seepage berm, approximately 2,350-linear-feet-long and 65-foot-wide, between Stations 700+00 and 723+47, on the right (east) bank levee of the San Joaquin River. The project is located in Lathrop, south of Howard Road and west of I-5 (Section 33, T1S, R6E, MDB&M, Reclamation District 17, San Joaquin River, San Joaquin County).

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

(SEAL)

Dated: _____

Executive Officer

GENERAL CONDITIONS:

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

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

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

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

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

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

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

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

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

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

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

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

SPECIAL CONDITIONS FOR PERMIT NO. 18518-A BD

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

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

FIFTEEN: The permittee shall 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.

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

SEVENTEEN: 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.

EIGHTEEN: 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.

NINETEEN: 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.

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

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

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

TWENTY-FOUR: Backfill material for excavations shall be placed in 4- to 6-inch layers and compacted to at least the density of the adjacent, firm, undisturbed material.

TWENTY-FIVE: Control valves for the sprinkler system with manual shut-off capabilities shall be located at least 15 feet landward of the landside levee toe and seepage berm toe and be clearly marked.

TWENTY-SIX: Landscaping, appurtenances, and maintenance practices shall conform to standards contained in Section 131 of the Central Valley Flood Protection Board's Regulations.

TWENTY-SEVEN: Any vegetation which interferes with the successful execution, functioning, maintenance, or operation of the adopted plan of flood control must be removed by the owner at owner's expense upon request by the Central Valley Flood Protection Board, Department of Water Resources, or local maintaining agency. If the owner does not remove such vegetation upon request, the Central Valley Flood Protection Board reserves the right to remove the vegetation at the owner's expense.

TWENTY-EIGHT: All debris generated by this project shall be disposed of outside the floodway and off the levee and seepage berm.

TWENTY-NINE: The levee shall be restored to at least the condition that existed prior to commencement of work.

THIRTY: The bicycle/pedestrian trail shall conform to the standards contained in Section 132 of the Central Valley Flood Protection Board's Regulations.

THIRTY-ONE: Granting of this permit does not convey any interest in real property. The permittee shall be responsible, at permittee's expense, for obtaining an easement or other appropriate interest in real property for construction and maintenance of the bicycle/pedestrian trail from the fee owner of the property.

THIRTY-TWO: Maintenance of the bicycle/pedestrian trail shall be the responsibility of the permittee unless the permittee submits evidence of an agreement by which a public agency has assumed the responsibility of maintaining the bicycle/pedestrian trail. The trail shall be maintained to a level that is safe for bicycle traffic and acceptable to the local flood control maintaining agency and the Department of Water Resources.

THIRTY-THREE: Repair and/or replacement of the bicycle/pedestrian trail, should it become damaged due to emergency flood fight, levee or floodway maintenance, or necessary improvement activities on the flood control project feature, shall be made by and at the sole expense of the permittee, or in accordance with the agreement for maintenance between the permittee and the public agency.

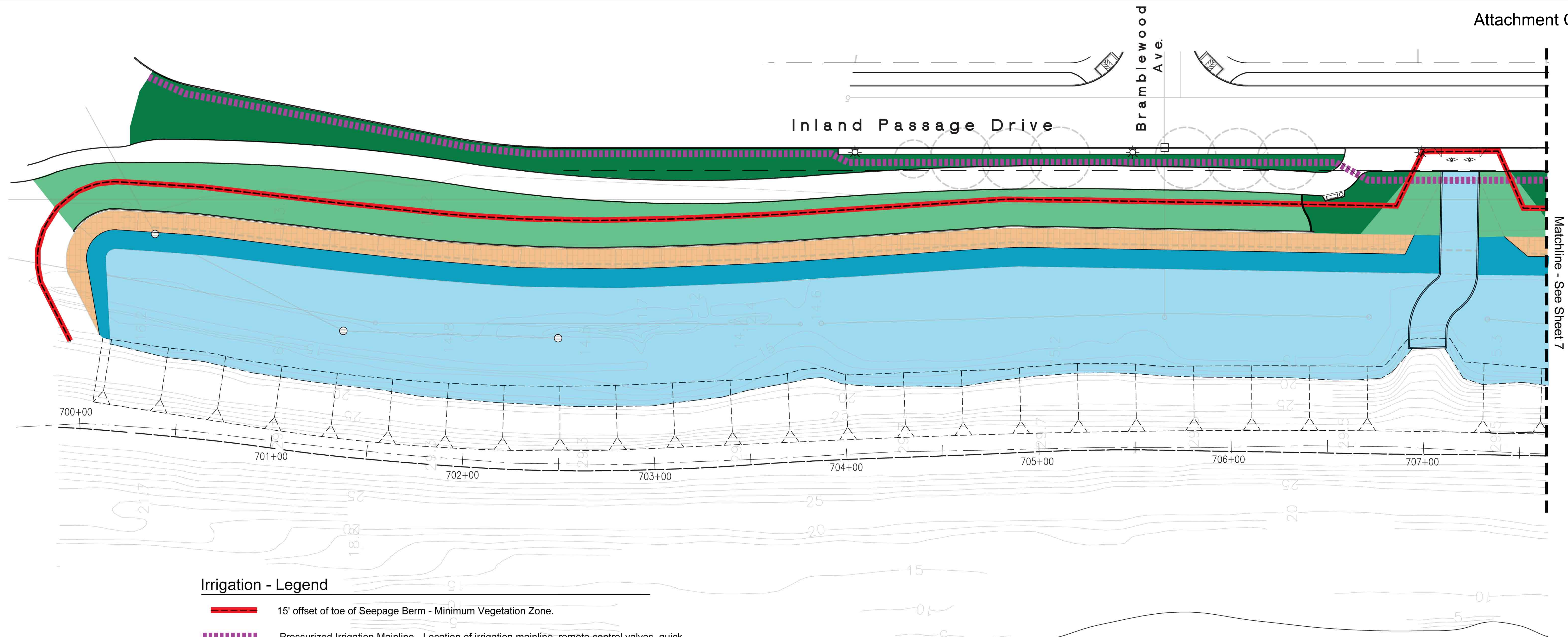
THIRTY-FOUR: The permittee agrees to bear the cost of any repairs to the flood control project feature that are made necessary by the presence or use of the bicycle/pedestrian trail.

THIRTY-FIVE: The Central Valley Flood Protection Board and local flood control maintaining agency retain the right to temporarily close the bicycle/pedestrian trail for improvement, maintenance, and emergency flood fight activities.

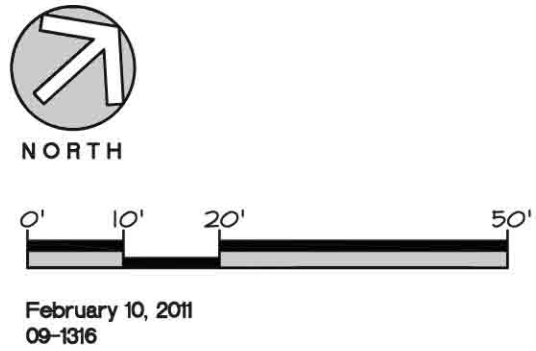
THIRTY-SIX: The permittee shall defend, hold harmless, and indemnify the State of California and the Central Valley Flood Protection Board, and each of their boards, elected officials, officers, employees, and agents against all damages and claims of liability of whatever nature which arise from the use of the levee as a bicycle trail.

THIRTY-SEVEN: The permittee shall submit a plan for monitoring the existing underseepage collection system during operation of the irrigation improvements that is acceptable to the Central Valley Flood Protection Board with consideration for any mitigation needed to assure the system operates as designed at all times. This plan is to assess the first season of use after installation or longer if needed.

THIRTY-EIGHT: The permittee shall comply with all conditions set forth in the letter from the Department of the Army dated July XX, 2011, which is attached to this permit as Exhibit A and is incorporated by reference.



Irrigation - Legend	
	15' offset of toe of Seepage Berm - Minimum Vegetation Zone.
	Pressurized Irrigation Mainline - Location of irrigation mainline, remote control valves, quick couplers, and gate valves. This is the portion of the irrigation system that is under constant pressure. It has been located directly adjacent to the back of the sidewalk and/or the street curb to be as far away from the Seepage Berm as possible. Irrigation Mainline is 2-1/2" Class 315 (Approx. 2,184 Lf.) PVC and buried 24" below grade. All irrigation equipment is placed below grade within a plastic or concrete valve box.
	Low-volume Gear Rotor Irrigation heads on top of Seepage Berm - Rainbird 5000 series gear rotor nozzles on 6" pop-up heads with swing joints. Class 200 PVC lateral piping (circuit piping) to be buried max. 12" depth. Lateral piping (circuit piping) is under pressure only when the sprinklers are operating. 133,964 sf. - 366 qty. of heads with 10,681 lf. of lateral piping
	Low-volume Rotary Irrigation heads on top of Seepage Berm - Rainbird R13-17 series Rotary nozzles on 12" pop-up heads with swing joints. Class 200 PVC lateral piping (circuit piping) to be buried max. 12" depth. Lateral piping (circuit piping) is under pressure only when the sprinklers are operating. 22,195 sf. - 193 qty. of heads with 2,839 lf. of lateral piping.
	Pop-Up spray irrigation heads - Rainbird 1800 series spray nozzles on 4" pop-up heads for turf and 12" pop-up heads for shrubs with swing joints. Class 200 PVC lateral piping (circuit piping) to be buried max. 12" depth on seepage berm and 18" deep off of seepage berm. Lateral piping (circuit piping) is under pressure only when the sprinklers are operating. 41,686 sf. - 340 qty. of heads with 5,321 lf. of lateral piping.
	Spot location drip irrigation - Rainbird xeri-bug emitters on poly-flex risers. Class 200 PVC lateral piping (circuit piping) to be buried 18" deep off of seepage berm. Lateral piping (circuit piping) is under pressure only when the emitters are operating. No surface-mounted drip tubing - all supply lines are buried. 21,139 sf.
	Existing pop-up spray irrigation to remain as is.
	Shoreblock - Articulated concrete-block mat covering the exposed gravel portion of the seepage berm.
	No Irrigation.



February 10, 2011
09-1316

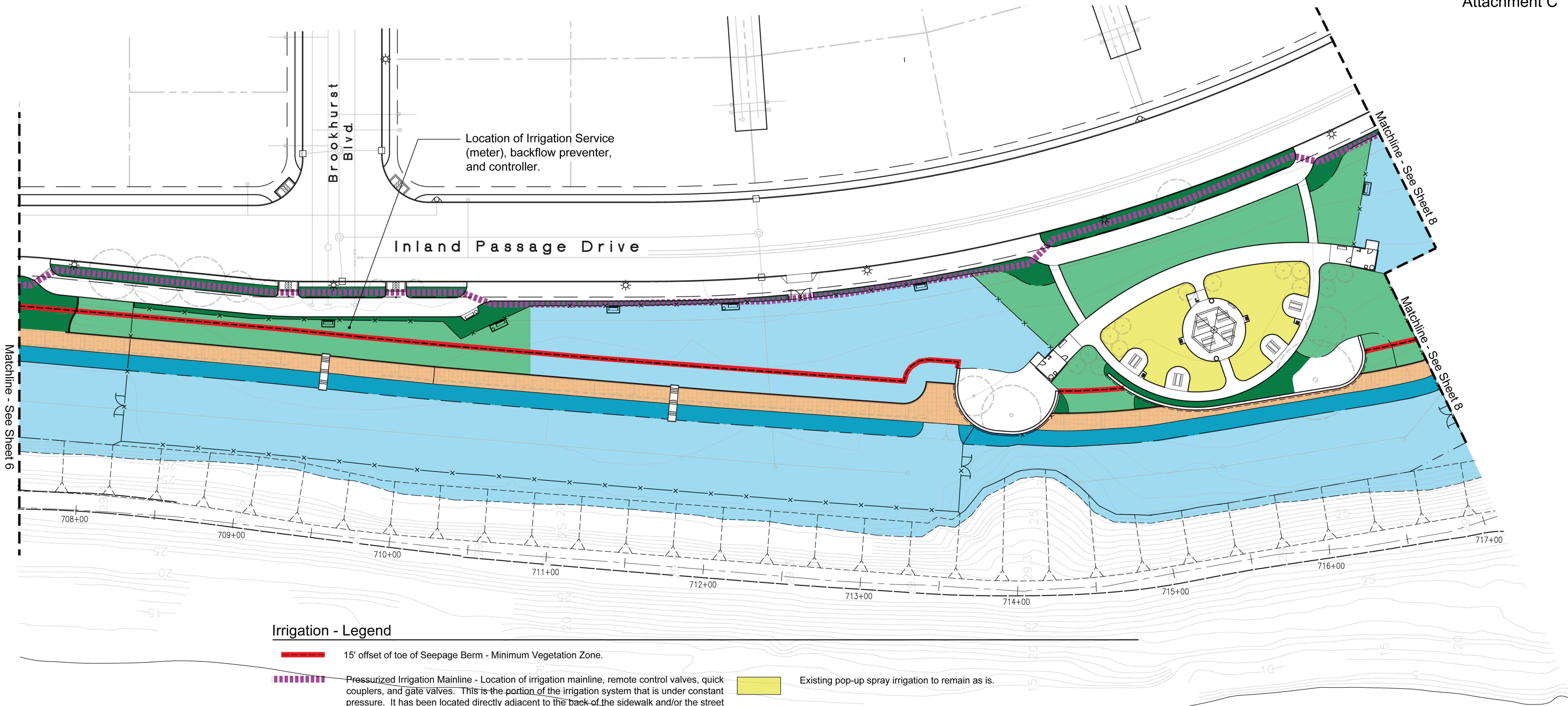
These plans provide a summary and graphic representation of, and are to be used in conjunction with, the full set of Landscape Construction Plans for River Park - RD17 Element VIa.2 prepared by KLA, Inc. and dated 12-12-10 (sheets L0.1 - L4.2).

Sheet 6

Irrigation

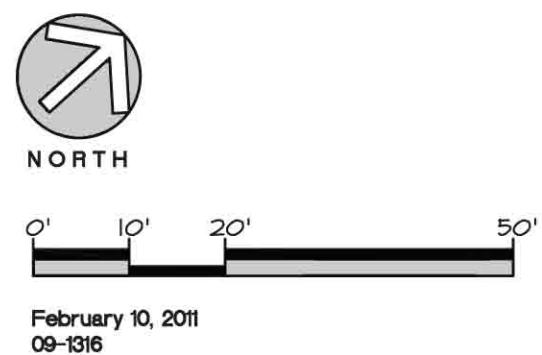
Landscape Construction Document Summary Plans

River Park - Element VIa.2



Irrigation - Legend

- 15' offset of toe of Seepage Berm - Minimum Vegetation Zone.
- Pressurized Irrigation Mainline - Location of irrigation mainline, remote control valves, quick couplers, and gate valves. This is the portion of the irrigation system that is under constant pressure. It has been located directly adjacent to the back of the sidewalk and/or the street curb to be as far away from the Seepage Berm as possible. Irrigation Mainline is 2-1/2" Class 315 (Approx. 2,184 Lf.) PVC and buried 24" below grade. All irrigation equipment is placed below grade within a plastic or concrete valve box.
- Low-volume Gear Rotor Irrigation heads on top of Seepage Berm - Rainbird 5000 series gear rotor nozzles on 6" pop-up heads with swing joints. Class 200 PVC lateral piping (circuit piping) to be buried max. 12" depth. Lateral piping (circuit piping) is under pressure only when the sprinklers are operating. 133,964 sf. - 366 qty. of heads with 10,681 lf. of lateral piping
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- Spot location drip irrigation - Rainbird xeri-bug emitters on poly-flex risers. Class 200 PVC lateral piping (circuit piping) to be buried 18" deep off of seepage berm. Lateral piping (circuit piping) is under pressure only when the emitters are operating. No surface-mounted drip tubing - all supply lines are buried. 21,139 sf.
- Existing pop-up spray irrigation to remain as is.
- Shoreblock - Articulated concrete-block mat covering the exposed gravel portion of the seepage berm.
- No Irrigation.



February 10, 2011
09-1316

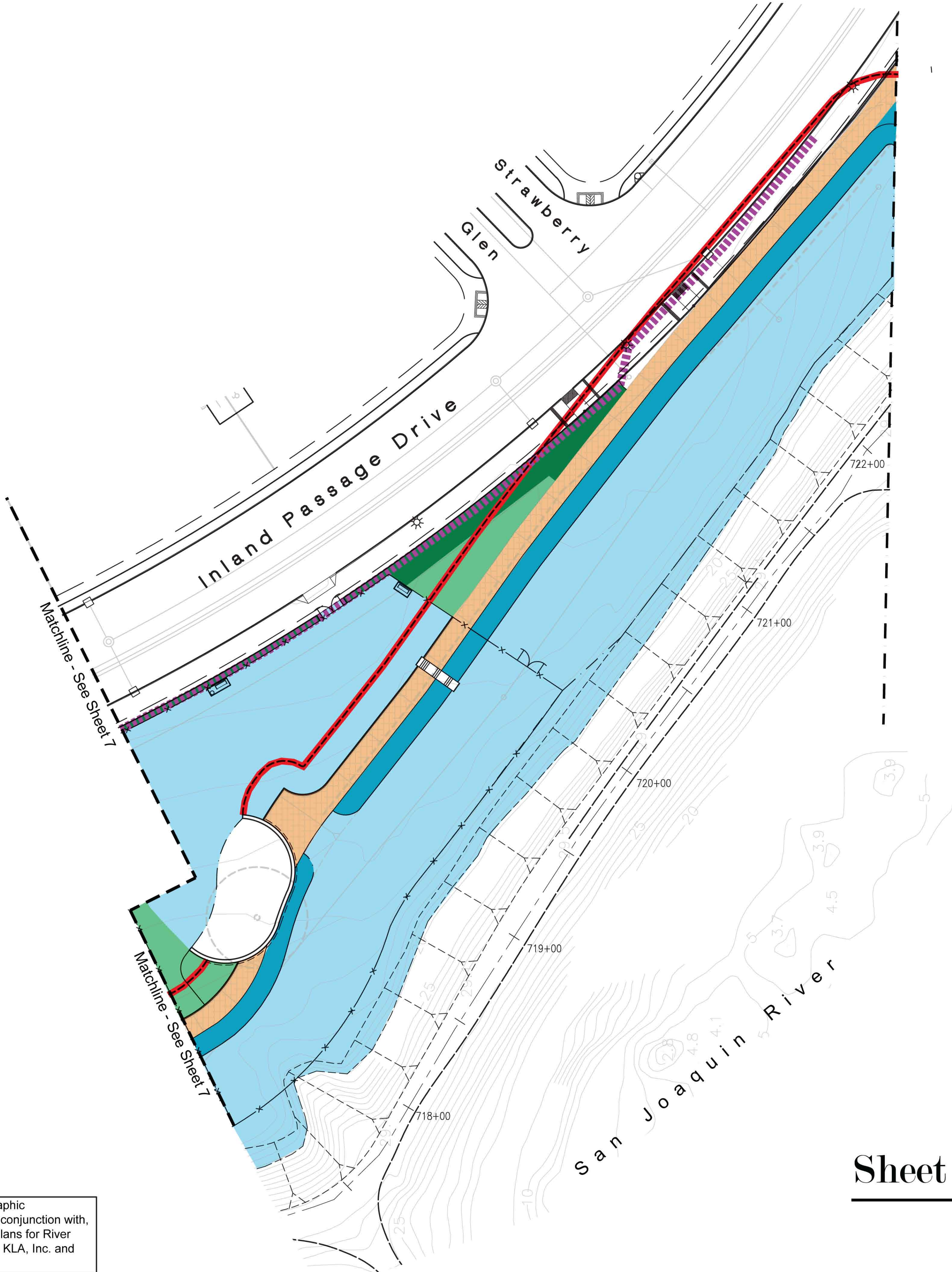
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Sheet 7

Irrigation

Landscape Construction Document Summary Plans

River Park - Element VIa.2



Irrigation - Legend

- 15' offset of toe of Seepage Berm - Minimum Vegetation Zone.
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- Existing pop-up spray irrigation to remain as is.
- Shoreblock - Articulated concrete-block mat covering the exposed gravel portion of the seepage berm.
- No Irrigation.

NORTH

February 10, 2011
09-1316

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Sheet 8

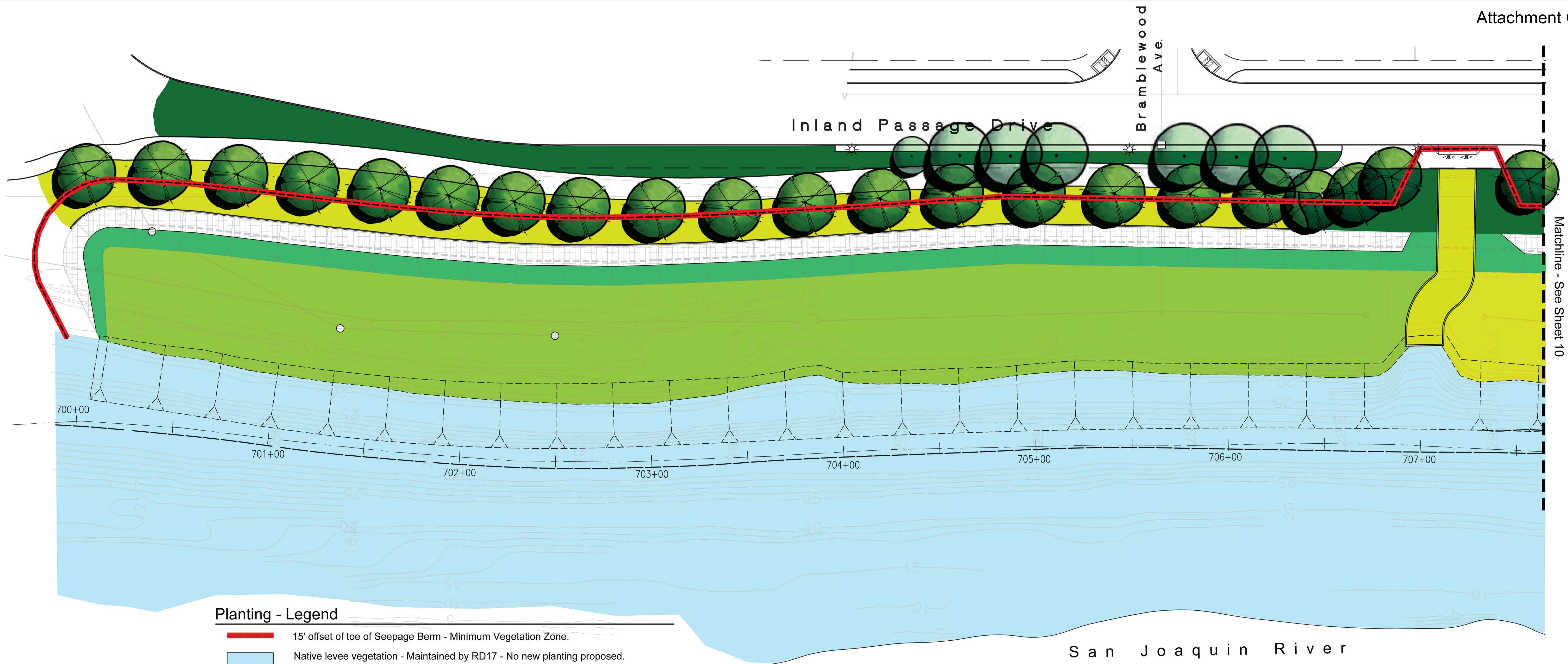
Irrigation

Landscape Construction Document Summary Plans

River Park - Element VIa.2

LANDSCAPE
ARCHITECTURE
PLANNING

www.knoxla.com
151 N. Norlin St.
Sonoma, CA 95370
(209)532-2856
(209)532-9510 fax

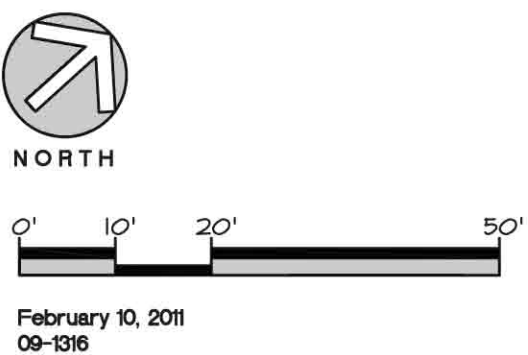


Planting - Legend

- 15' offset of toe of Seepage Berm - Minimum Vegetation Zone.
- Native levee vegetation - Maintained by RD17 - No new planting proposed.
- Top of Seepage Berm - 102,245 sf. - Low grasses and wildflowers with max. height of 12". To be maintained annually to ensure height of plants does not exceed 12".
Perennial Wildflower seed mix. available from Pacific Coast Seed
 - White Yarrow
 - Lance Leaved Coreopsis
 - Dame's Rocket
 - Blue Flax
 - Mexican Primrose
 - Blue-Eyed Grass
 - Ox-Eye Daisy
 - California Poppy
 - Purplenet Toadflax
 - Sky Lupine
 - Blach-Eyed SusanNative Fine Fescue Blend see mix available from Pacific Coast Seed
 - Molate Blue Fescue
 - Mokelumne Western Fescue
 - Native Blue Bunch Fescue
- Sides of Seepage Berm - 22,195 sf. - Grasses and non-woody plants with max. height of 12". To be maintained annually to ensure height of plants does not exceed 12".
 - Carex comans 'Frosty Curls'
 - Carex glauca
 - Festuca glauca
 - Fragaria chiloensis
 - Hypericum calycinum
 - Osteospermum fruticosum
 - Trachelospermum asiaticum
 - Frosty Curls Sedge
 - Blue Sedge
 - Common Blue Fescue
 - Wild Strawberry
 - Aaron's Beard
 - Freeway Daisy
 - Asian Jasmine
- Shrubs and groundcover outside of the Seepage Berm and outside of the 15' seepage berm offset. 24,934 sf.
- Lawn - Regularly mowed turf grass - 3" - 4" height. 65,955 sf.
- Proposed Trees - All are outside of the Seepage Berm and the 15' offset. 21 proposed trees
- Existing trees to remain.

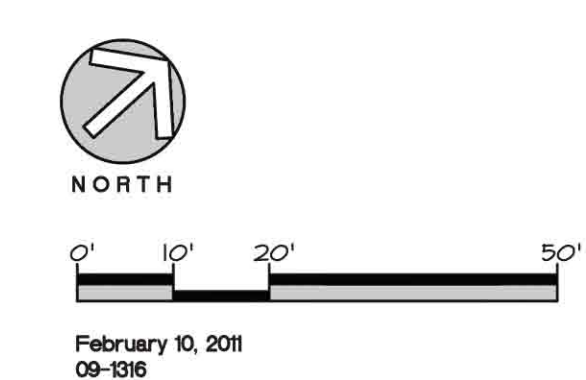
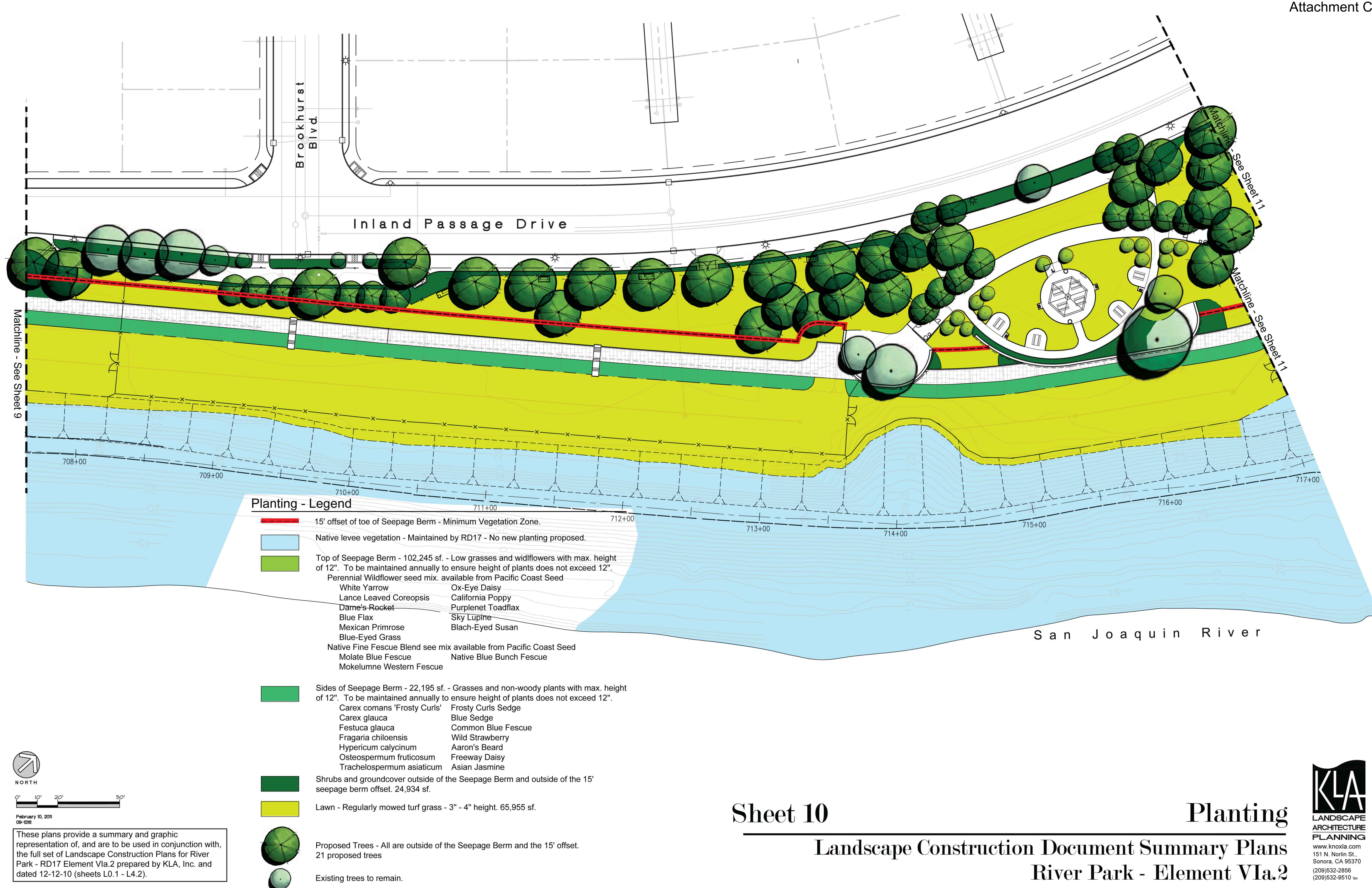
Specific Planting Notes

- No trees shall be planted on the slopes or top (plateau) of the seepage berm or on the levee or within the 15' setback line from the toe of the seepage berm/levee.
- All trees shall be non-nutting varieties as specified on the plans.
- All trees shall be pruned to maintain 5' visual clearance from the top of the seepage berm.
- Any damage that may be inadvertently caused to the existing filter fabric, aggregate (drain rock) layer, or drainage devices shall be brought to the attention of RD 17 and/or the civil engineer immediately.



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Sheet 10

Planting

Landscape Construction Document Summary Plans

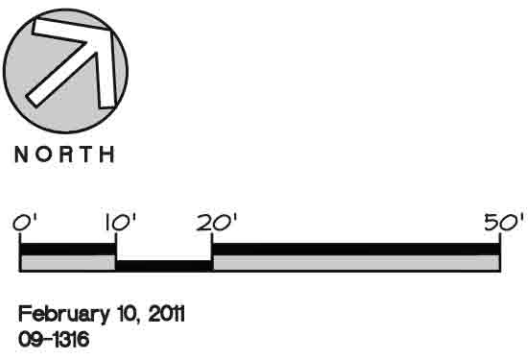
River Park - Element VIa.2





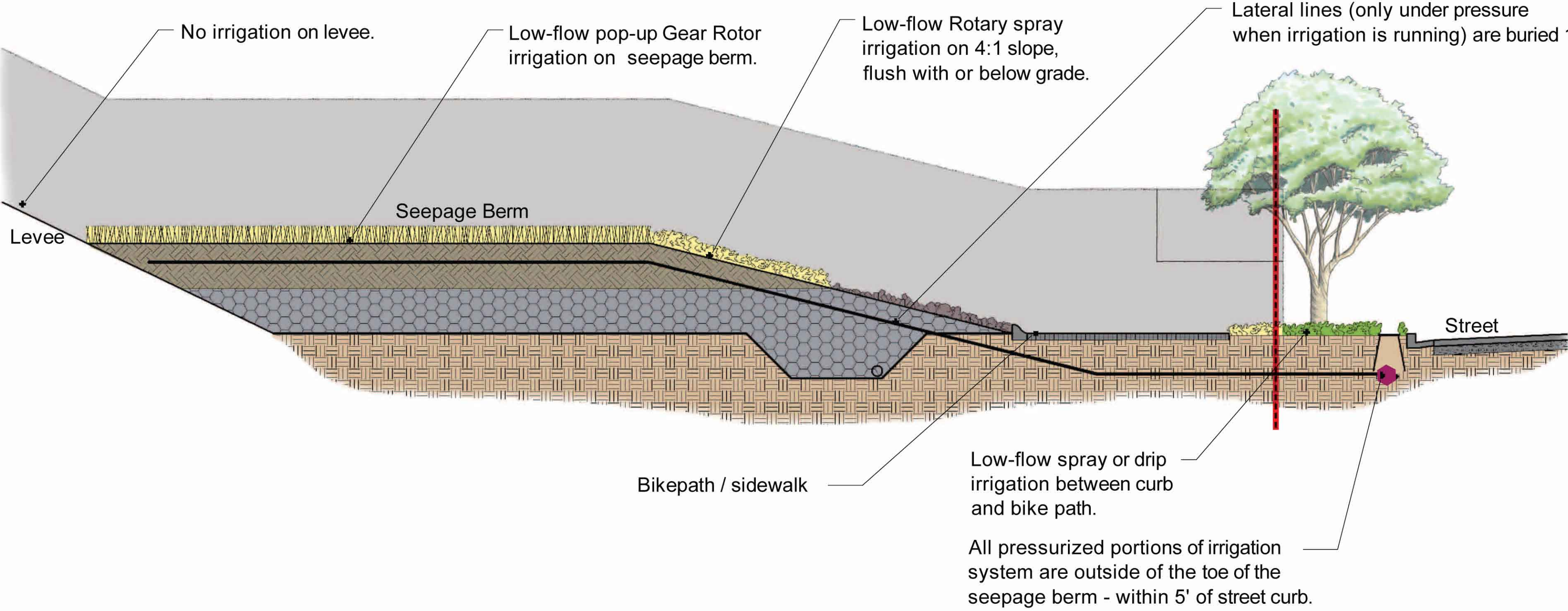
Planting - Legend

- 15' offset of toe of Seepage Berm - Minimum Vegetation Zone.
- Native levee vegetation - Maintained by RD17 - No new planting proposed.
- Top of Seepage Berm - 102,245 sf. - Low grasses and wildflowers with max. height of 12". To be maintained annually to ensure height of plants does not exceed 12".
 - Perennial Wildflower seed mix. available from Pacific Coast Seed
 - White Yarrow
 - Lance Leaved Coreopsis
 - Dame's Rocket
 - Blue Flax
 - Mexican Primrose
 - Blue-Eyed Grass
 - Ox-Eye Daisy
 - California Poppy
 - Purplenet Toadflax
 - Sky Lupine
 - Blach-Eyed Susan
- Native Fine Fescue Blend see mix available from Pacific Coast Seed
 - Molate Blue Fescue
 - Mokelumne Western Fescue
 - Native Blue Bunch Fescue
- Sides of Seepage Berm - 22,195 sf. - Grasses and non-woody plants with max. height of 12". To be maintained annually to ensure height of plants does not exceed 12".
 - Carex comans 'Frosty Curls'
 - Carex glauca
 - Festuca glauca
 - Fragaria chiloensis
 - Hypericum calycinum
 - Osteospermum fruticosum
 - Trachelospermum asiaticum
 - Frosty Curls Sedge
 - Blue Sedge
 - Common Blue Fescue
 - Wild Strawberry
 - Aaron's Beard
 - Freeway Daisy
 - Asian Jasmine
- Shrubs and groundcover outside of the Seepage Berm and outside of the 15' seepage berm offset. 24,934 sf.
- Lawn - Regularly mowed turf grass - 3" - 4" height. 65,955 sf.
- Proposed Trees - All are outside of the Seepage Berm and the 15' offset. 21 proposed trees
- Existing trees to remain.



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Irrigation System Design Compliance with ETL Section 4-4

- All continually pressurized irrigation lines will be located outside of the seepage berm. The pressurized mainline may need to be located within the minimum vegetation zone in areas with limited space between the back of curb, or bike path, and the toe of seepage berm.
- Lateral lines, that are under pressure only when the circuit is in operation, will be installed on the seepage berm to the toe of the levee to a max. depth of 12". No irrigation components will be installed on the levee.
- Lateral pipes will be class 200 and pressurized mainline pipe will be schedule 40.
- Typically all irrigation zones will be broadcast pop-up spray heads - low-flow from .4 to 1 inches per hour.
- The irrigation system will be equipped with a flow sensor and automatic master shut-off valve to automatically and immediately stop the system when a high flow is detected by the flow sensor. The system will automatically and immediately send an alert message to the City maintenance department for repairs. System will not operate until repairs have been made and alert is cleared.
- All circuits will be controlled by an automatic controller that will be programmed to provide the plant material with minimum required water.
- The landscape and irrigation will be continually monitored and maintained by the City of Lathrop Public Works Parks Department.

Typical Irrigation Schematic on Seepage Berm

Not to Scale