STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
and
City of Saint Paul

PROJECT MEMORANDUM
AND DESIGN EXCEPTION REQUEST
FOR

SP 164-090-014
Minn Proj No. NMTP-TAP 6218( )

ROUTE NAME: Robert Piram Regional Trail
FROM: Harriet Island Regional Park
TO: Mississippi River Regional Trail

Cities of: Saint Paul, South Saint Paul, and Lilydale

PROPOSED IMPROVEMENT: Construct approximately 3.7 miles of multi-use, off-road trail; Bridge Number R0733, R0738, and R0739; lighting, traffic signals, and ADA improvements.

Recommended:

City of Saint Paul — Dec. 01, 2017 — Date

Recommended:

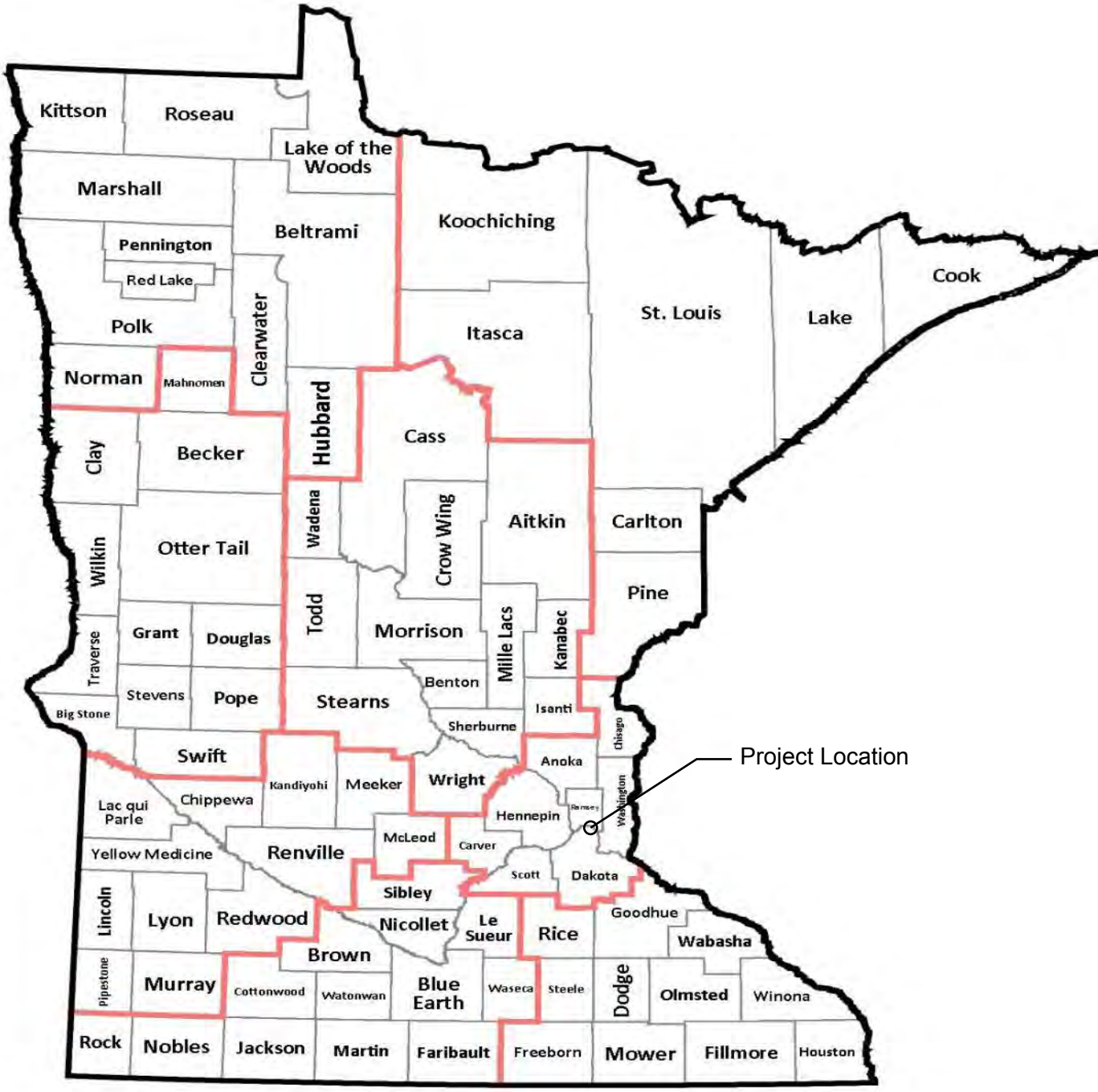
Dakota County — 12/1/2017 — Date

Reviewed and Recommended:

for District State Aid Engineer — 2/6/2018 — Date

Approved:

State Aid Engineer
State Aid for Local Transportation — 2/26/18 — Date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Otter Tail
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Yellow Medicine
Renville
Carver
Scott
Dakota
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Nobles
Jackson
Martin
Faribault
Freeborn
Mower
Fillmore
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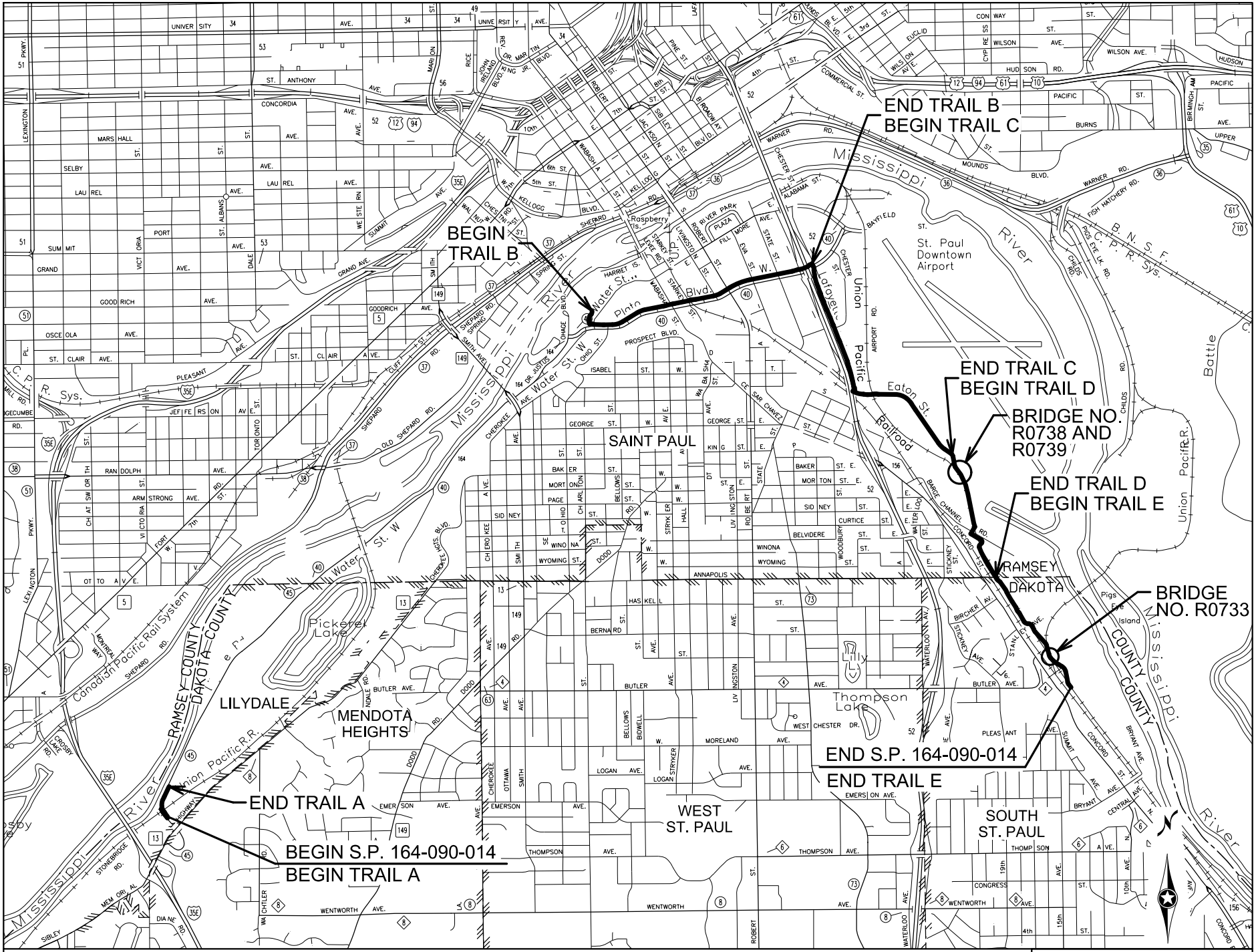
STATE MAP



PROJECT LOCATION MAP

1. REPORT PURPOSE

This Project Memorandum (PM) documents the need for the proposed improvement, environmental impacts and mitigation, and schedule, funding and design information.

This documentation was prepared to demonstrate that the project does not have a significant environmental effect and is excluded from the requirement to prepare an EA or EIS in accordance with 23 CFR 771.115.

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2. HIGHWAY SECTION DESCRIPTION

The proposed off-road, multi-use trail contains five segments. Refer to Exhibits 1A-1D for a depiction of trail segment locations and Exhibits 2A-2F for proposed trail and roadway sections for the segments.

The first trail segment, Trail A, begins in Lilydale at the Big Rivers Regional Trail trailhead, which is located approximately 500-ft. north of where Lilydale Road crosses beneath Sibley Memorial Highway (TH 13). The trail crosses Lilydale Road (County

Road 45) and then follows along the east side of Lilydale Road to the entrance of Lilydale Regional Park. Refer to the “Alternatives” section for further information regarding this trail segment.

The trail then connects to the existing trail segment at the west entrance of Lilydale Regional Park until reaching the second proposed trail segment, Trail B, which begins at the entrance of Harriet Island Regional Park in Saint Paul, and proceeds south to the intersection of Water Street and Plato Boulevard. Continuing east, the trail is located on the north side of Plato Boulevard until it reaches the east frontage road of Lafayette Road (TH 52). Between Water Street and Wabasha Street, the north travel lane of westbound Plato Boulevard will be removed and the center median narrowed to accommodate the trail.

After crossing Plato Boulevard, the third segment of the trail, Trail C, proceeds south following the east side of the east frontage road of Lafayette Road (TH 52) from Plato Boulevard to Eaton Street. Portions of the easterly lane of the frontage road will be narrowed to accommodate the trail.

The trail crosses Eaton Street and continues east and south along the south side of Eaton Street. The forth segment of the trail, Trail D, then departs Eaton Street at the south end of the Saint Paul Downtown Airport and passes through the Airport Marsh wetland and upland forest; continues south parallel to the east side of the Union Pacific Railroad corridor, to the Ramsey-Dakota county line. From that point, the fifth and final segment, Trail E, continues to the south in South Saint Paul until reaching Kaposia Landing Park. A portion of the local trail near the ball fields will be slightly re-aligned to accommodate the regional trail. Two boardwalk structures, Bridges R0738 and R0739 will be constructed in the wetland and Bridge R0733 will be constructed over the Union Pacific tracks adjacent to Kaposia Landing Park.

Trail Section Termini

From: Confluence of Big Rivers Regional Trail and River to River Greenway in Lilydale

To: Kaposia Landing Park in South Saint Paul

Length: 3.8 miles

See additional 'Existing Condition' elements description in the Design Study Section.

Unusual Traffic or Road / Facility Use:

Unusual traffic patterns exist at the trail intersection with Barge Channel Road, where there is a high amount of truck traffic on Barge Channel Road.

Horizontal/Vertical Alignment:

The proposed horizontal and vertical alignment of the trail varies throughout the project area as follows:

Segment 1 (Trail A): The River to River Greenway trail segment that approaches the project from the south follows the horizontal curvature of Lilydale Road and is steep. The segment to be constructed in this project in the vicinity of the Pool and Yacht Club mimics the curvature of Lilydale Road and consists of a relatively flat profile grade.

Segments 2 and 3 (Trail B and C): These trail segments are parallel to Plato Boulevard and Lafayette Road, respectively, and are straight and predominantly flat to moderately steep.

Segment 4 (Trail D): The trail segment that parallels Eaton Street is mostly straight with a large curve. As the trail proceeds south away from Eaton Street through the wetland/upland forest area, the alignment is generally straight and flat with some localized areas of moderately steep grades.

Segment 5 (Trail E): This alignment of this segment is generally straight and flat with some localized areas of curves and moderately steep grades.

Adjacent Land Use:

The adjacent land use in the project area is as follows:

Segment 1 (Trail A): rural and park
Segment 2 (Trail B): Park, commercial, and light industrial
Segment 3 (Trail C): Commercial, and light industrial
Segment 4 (Trail D): Airport, wetland, upland forest, and industrial
Segment 5 (Trail E): Industrial, upland forest, and park

Bridge Crossings: Yes

Bridge Number: R0733
Sufficiency Rating: N/A
Structurally Deficient: No
Functionally Obsolete: No

Location (over/under): Union Pacific Railroad
Waterway crossing: No

Bridge Number: R0738
Sufficiency Rating: 0
Structurally Deficient: No
Functionally Obsolete: No
Location (over/under): Airport Marsh
Waterway crossing: No

Bridge Number: R0739
Sufficiency Rating: N/A
Structurally Deficient: No
Functionally Obsolete: No
Location (over/under): Wetland/ditch
Waterway crossing: No

Railroad Crossings: Yes

Name of Railroad: Union Pacific Railroad

There are at-grade railroad crossings at the following locations:

- Plato Boulevard approximately 500-ft. east of Wabasha Street
- Eaton Street near Airport Road
- Barge Channel Road

A crossing diagnostic meeting was held on May 24, 2016 to discuss the at-grade crossings. The attendees included representatives from the City of Saint Paul, Dakota County, Ramsey County, Federal Railroad Administration, MnDOT, Union Pacific Railroad, and the design consultant. The meeting included a review of the project site at each of crossing locations and a discussion of the design alternatives and requirements for the trail crossings.

Airport Proximity: Yes

Name of the Airport
Saint Paul Downtown Airport (Holman Field)

The project is adjacent to Saint Paul Downtown Airport (Holman Field) and passes through land owned by the Metropolitan Airports Commission (MAC). Activities related to the construction of Bridges R0733, R0738, and R0739 will require notification to the Federal Highway Administration. Coordination with MAC has been

ongoing since the development of the Harriet Island to South Saint Paul Regional Trail Master Plan. A copy of correspondence with MnDOT's Office of Aeronautics is attached.

Traffic Signals: Yes

Traffic signals are present at the intersections of Plato Boulevard and Wabasha Street, Robert Street, and the Lafayette Road frontage roads. The signals will be upgraded to meet current ADA standards

3. PROJECT PURPOSE AND NEED

Purpose/Objectives

The purpose of the project is to fill a gap in the regional multi-modal transportation system with a safe, efficient, and accessible regional trail.

Need/Deficiencies

A need has been identified to provide a multi-modal transportation option to fill a gap in the regional multi-modal transportation and recreation system. Currently the Twin Cities metropolitan area is home to one of most highly developed and utilized trail systems in the United States. Residents of and visitors to Saint Paul and first tier suburbs of South Saint Paul, Lilydale, Mendota Heights, and West Saint Paul and the surrounding region have access to and utilize this system. There are three gaps in this regional system in the south side of the lower Mississippi River basin, which are shown in Exhibit 3A.

The first gap is along Lilydale Road in Lilydale, where Big Rivers Regional Trail and River to River Greenway trail users are forced to ride on-road on a curved street with poor sight distances to the Lilydale Regional Park Trail. Northbound River to River Greenway trail users approach this segment on a steep profile. The Pool and Yacht Club facility is bisected by Lilydale Road. Patrons and employees cross the road, with high numbers of crossings in the busy summer months, which adds to the geometric safety concerns.

The second gap runs east-west along Plato Boulevard between Harriet Island Regional Park and Lafayette Road, which currently serves only pedestrians on sidewalks. Connections to Harriet Island Regional Park, Cherokee Regional Trail, and downtown Saint Paul via the Wabasha Street and Lafayette Road bridges and to the vast trail network on the north side of the Mississippi River and Ramsey County are currently missing.

Finally, a gap exists from Plato Boulevard at Lafayette Road south to Kaposia Landing Park in South Saint Paul, which has connections to the Mississippi River Regional Trail and the east leg of the River to River Greenway in Dakota County trail system. This area is predominantly industrial and is bounded by river bluffs, Concord Street, and a railroad corridor on the west and the Saint Paul Downtown Airport and Mississippi River on the east. The only trail provisions in the corridor utilize the shoulder of Concord Street, which is a busy street with a trunk highway designation that carries a high amount of truck traffic.

The City of Saint Paul has identified filling these gaps as a priority in the Saint Paul Bicycle Plan, which was adopted as an addendum to their Comprehensive Plan. Other City planning documents such as the Great River Passage Master Plan note the importance of the route as well. Similarly, Dakota County has prioritized their portion of segment in the Dakota County 2030 Park System Plan, Trails and Open Space Partnership Plan, and Minnesota River Greenway Master Plan.

In addition to the local needs identified above, these segments also have state and national needs as well. The Mississippi River Trail (MRT) is planned to traverse from the head waters of the Mississippi River at Lake Itasca, Minnesota to its tail waters in New Orleans, Louisiana. The MRT has largely been completed within the Twin Cities area with the exception of the portion within the project area.

Selected maps from these documents can be found in Exhibits 3B-D.

Trail segments A through E of the Robert Piram Regional Trail (RPRT) will fill a 3.7 mile long gap within the trail networks noted above and expand multi-modal transportation access to vital local and regional employment and retail centers and recreational access to local and regional parks and trails. Implementing the RPRT will provide safety, mobility, environmental, and economic benefits and will improve multi-modal transportation efficiency.

4. ALTERNATIVES

No Build Alternative

The no-build alternative was not selected because it would not fulfill the purpose and need for the project. The long-recognized need for connections that provide and expand the multi-modal transportation option and fills a gap in the regional multi-modal transportation and recreation system would continue to go unmet.

Design/Construction Alternatives

The proposed trail will consist of an 8' minimum (10' preferred) wide off-road bituminous trail with 2' minimum wide shoulders/clear zone. Where right-of-way and

physical constraints allow, a 5' boulevard will be provided between the trail and the street to allow for placement of appurtenances such as signs and poles, snow storage, and separation from traffic.

Alternative trail surface materials include aggregate and concrete. Aggregate is the cheapest alternative, is easy to repair, and is environmentally friendly. However, the aggregate surface loses cohesion over time, which increases the risk of skidding, does not provide sufficient traction with steeper grades, and is susceptible to erosion and vegetation intrusion. For these reasons, aggregate surfacing is not a desired material for use on regional trails that see considerable amounts of non-motorized traffic.

A concrete trail section provides the most durable surface over time. However, jointing is required at frequent intervals to prevent cracking and can tend to provide an unpleasant ride for bicyclists and rollerbladers. This, coupled with a significant cost increase over bituminous pavement, renders the concrete alternative not feasible for use on the entire project. Concrete trail segments will be utilized in localized areas, however, when it is desired to minimize fill slope impacts by constructing a concrete slab with a thickened edge.

Alignments avoiding the Section 4(f)/6(f) properties were not considered as providing connections to recreation areas is one of the purposes of the project.

Location Alternatives

In general, the location of trail alignment was developed in previous planning efforts. Segments that required analysis of alternatives are described below.

Trail A

Three alignment alternatives were considered in Trail A, which are depicted in Exhibit 1A. During the alternatives analysis for this segment of the project, Union Pacific Railroad (UPRR) determined that their bridge over Lilydale Road needed to be replaced due to structural concerns and agreed to work with Dakota County on providing a bridge span that would allow for a trail to be placed on the east side of the road. Replacement of the bridge is expected to be completed in February/March 2018.

Alternate 1 – This alternate involves constructing a trail segment adjacent to the south side of the UPRR tracks, crossing beneath the tracks in an underpass, and connecting to Lilydale Park on the east side of the Pool and Yacht Club. This alternate was determined to be not feasible due to the following:

- Vertical distance available for the underpass was constrained by the existing railroad track elevation and the trail elevation required to keep the tunnel above

ground water. Raising the track and providing for a dry tunnel added considerable cost to this alternate.
- UPRR construction methods and timing requirements.
- Unknown location and depth of a high-pressure gas main in the vicinity of the tunnel.
- Length of tunnel required due to topographical constraints presented security and user comfort issues.

Alternate 2 – This alternate involves constructing an off-road trail along the east side of Lilydale Road, passing beneath the new railroad bridge, turning to the east along the north side of the railroad corridor, and then north to Lilydale Regional Park. The east-west segment along the UPRR corridor is constrained by the UPRR property line and the Pool and Yacht Club pool facility. UPRR indicated that a trail would not be allowed within their right of way due to security concerns. North of the UPRR right of way is Pool and Yacht Club property. Spatial constraints between the pool facility and the property line require reconfiguration of the pool facility or relocation of the entire pool facility.

Alternate 3 – This alternate involves constructing an off-road trail along the east side of Lilydale Road, passing beneath the railroad bridge that will be reconstructed by UPRR in 2018, and continuing along the east side of Lilydale Road to Lilydale Regional Park. To accommodate the proposed off-road trail section, Lilydale Road needed to be narrowed and shifted slightly to the west. Utility relocations that were necessary to facilitate the replacement of the UPRR bridge required reconstruction of Lilydale Road from its intersection with TH 13 through the Pool and Yacht Club area. Dakota County coordinated the proposed revised street section with the officials undertaking the street reconstruction to ensure compatibility with the trail.

This alternate requires obtaining an easement from the Pool and Yacht Club. The Pool and Yacht Club's Board of Directors expressed concern about the safety of the pedestrian crossing between their parking lot and their main building due to the poor sight conditions that exist on the curve due to the tall fence around the perimeter of the pool.

Due to high costs and complex construction associated with relocating the pool facility, Alternate 3 is preferred. Negotiations with the Pool and Yacht Club are ongoing for easement acquisition. Enhancements to the at-grade trail crossing will be studied, discussed with the Pool and Yacht Club, and incorporated into the design to ensure the safest feasible crossing for Pool and Yacht club employees and visitors and trail users alike.

<u>Trail B - Plato Boulevard (Water Street to Wabasha Street)</u>
Three alignment alternatives were considered for the segment between Water Street and Wabasha Street. Each of the alignments provides for an off-road segment on the

north side of the Plato Boulevard corridor, which consists of two thru lanes in each direction, a wide center median with left turn lanes, and a grass boulevard with mature trees and a sidewalk on both sides. The alternates were as follows:

Alternate 1 – Replace the sidewalk on the back side of the boulevard trees with the trail. This alternate would meet all of the trail design criteria and preserves the large mature trees, but requires acquiring additional right of way. Given the wide width of the existing street right of way, the City did not feel that acquiring additional right of way would be prudent.

Alternate 2 – Remove the mature boulevard trees and construct the trail within the existing right of way. This alternate is the least expensive of those considered. A concern with this alternate was of the potential controversy of removing mature boulevard trees and disrupting the balance of the parkway-like street.

Alternate 3 – Narrow the median and eliminate a traffic lane and place the trail between the street and the boulevard trees. This alternate has the highest construction cost but does not require acquisition of the right of way. However, given the relatively low ADT of 4900, it is felt that this segment does not require two eastbound traffic lanes to operate effectively. The road authority for Plato Boulevard is Ramsey County, which must approve of the street reconfiguration. Preliminary indications are that Ramsey County would approve of the change, contingent on public input. This alternate is depicted in Exhibit 2C and preferred by the City.

<u>Trail B - Plato Boulevard at Lafayette Road overpass</u>
The current configuration of the street as it passes beneath Lafayette Road contains the minimum width required for the ADT that it serves. Therefore, narrowing of the street was not considered. The two alternates at this location included:

Alternate 1 – Split the trail into two-one way trail sections between the two frontage roads. The eastbound trail traffic would be placed on the south side of Plato Boulevard and the westbound trail traffic on the north side. The primary negative to this alternate was a concern of eastbound trail users crossing Plato Boulevard on the west side of the intersection where traffic volumes are higher, and that eastbound users that were going to continue to the north on Lafayette would need to cross Plato Boulevard twice to do so.

Alternate 2 – Place both directions of trail traffic on the north side of Plato Boulevard. With the presence of the bridge embankment, constructing a retaining wall is required to accommodate the trail. This alternate is depicted in Exhibit 2C and is preferred by the City.

East Side, North-South Connection

Two primary alternates were considered for the north-south trail connection between Plato Boulevard and Eaton Street as follows:

Alternate 1 – Place the trail in the Airport Road corridor. This alignment would place the trail on top of the flood control levee on the west side of Airport Road, cross a UPRR industry spur track at-grade to the east side of Airport Road, and then proceed to the south to Eaton Street. The concept of installing an at-grade crossing was rejected by UPRR. An option to the at-grade railroad crossing was pass over levee opening for the spur track with a bridge span and continue south along the levee. However, this option was not feasible as the bridge structure encroached on the airport's runway protection zone. Other challenges included regulatory approval by the US Army Corps of Engineers, who has authority over the levee, as well as other utility and topographic constraints. As a result, this alternate was dropped from further consideration.

Alternate 2 – Place the trail along the east side of the east Lafayette Road (TH 52) frontage road. This alternate involves placing an off-road trail behind a 5-ft boulevard. To do so, some portions of the frontage road need to narrowed to accommodate the trail and minimize the amount of right of way that would need to be acquired. Coordination with MnDOT revealed that the frontage road portion of the right of way has been turned over to the City and that the narrowing of frontage road was acceptable to MnDOT.

Bridge Alternatives

Bridge R0733 over the Union Pacific Railroad consists of a prefabricated steel truss main span and prestressed concrete beam approach spans. UPRR dictated that the overpass span over their entire right of way, the length of which resulted in the use of a truss. Cast-in-place concrete slab approach spans were considered but rejected due to the increase in cost and time required to construct compared to prestressed concrete beams.

An alternate to boardwalk Bridges R0738 and R0739 is to place fill to support the trail section. However, the trail segments at these two locations are within a wetland and floodplain. The preferred alternate is to construct boardwalks to minimize the impact to the wetland and floodplain. In addition, a fill supported trail segment would be prone to settlement, leading to safety concerns due uneven or cracked pavement and pavement maintenance beyond what is considered routine.

Preferred Alternative

The preferred alternative consists of constructing an off-road, multi-use trail as depicted in Exhibits 1A-1D. Refer to Section 2 for a detailed description of the trail segments. In Trail A, Alternate 3 is preferred.

To accommodate the construction of the trail, curb and gutter sections, storm sewer, and utilities will be relocated. Bridge R0733 will be constructed over the Union Pacific Railroad in South Saint Paul and Bridges R0738 and R0379 will be constructed across wetlands in Saint Paul. Other associate work includes milling and placing a bituminous overlay on Plato Boulevard between Water Street and Wabasha Street, constructing at-grade railroad crossings at Eaton Street and Barge Channel Road, ADA upgrades at intersections, signing, striping, and informational kiosks.

5. PROJECT COSTS AND FUNDING SUMMARY

Estimated Project Costs

Trail Costs:	$4,825,000
Bridge Costs:	$2,930,000
Landscape/amenities Cost:	$400,000
Right of Way Costs:	$300,000
Design Engineering Costs:	$1,100,000
Construction Administrations Costs:	$800,000
Total Estimated Costs:	$10,355,000

All Non-Bridge Construction

Federal STP Funds:	$3,593,383
Federal TA Funds:	$0
Federal NMTP Funds:	$278,355
State Funds:	$0
CSAH Funds:	$0
MSAS Funds:	$0
Other Funds:	$0
Local Funds:	$1,106,617

Bridge Construction

Federal STP Funds:	$2,561,241
Federal BRSTP Funds:	$0
Federal BROS Funds:	$0
Federal TA Funds:	$0
Federal other Funds:	$0
State Funds:	$0
CSAH Funds:	$0

MSAS Funds:	$0
Other Funds:	$0
Local Funds:	$788,759
Total Funds:	$8,328,354

STIP Details

STIP Document Years:	2018-2021
STIP Project Year:	2018
STIP Sequence Number:	1412
STIP Federal Funding Amount (AC):	$6,154,624
STIP Estimate Construction Cost:	$7,693,280

A STIP Modification (Seq. 1412A) was approved 12/18/2017 adding $278,355 Non-Motorized funding in FY 2018 for the project.

This project will be constructed in advance of the federal funding being available; an Advance Construction Agreement will be executed for this project.

6. PROJECT SCHEDULE

Project Memo:	January 2018
Public Meeting(s):	April 2016
Right of Way Acquisition:	May 2018
Plans, Specs and Estimate:	April 2018
Bid Opening:	July 2018
Desired Construction Start:	2018-2019

Future Stages or Improvements:

The City of Saint Paul intends to pursue a grade separation for the trail crossing at Barge Channel Road.

7. PUBLIC INVOLVEMENT

Public Information Meetings

Date: 2016-04-26

Who was invited & how: Notice of the Open House was given to business and property owners on the trail alignment via mail and e-mail. In addition, the West Side Community Organization provided notice of the meeting to neighboring residents and interest groups. For notification to the broader public, the meeting was announced via

new releases, City and Dakota County websites, and automated email distribution lists.

Concerns raised: The following concerns were raised by meeting attendees:

- the amount of truck traffic along Plato Boulevard between Wabasha and Lafayette Road
- access to the trail east of Lafayette Road is limited.

How will they be addressed: Responses to the concerns were as follows:

- alignment alternates for this section will take truck traffic into consideration.
- opportunities for providing access to the trail are limited due to the site constraints (industrial facilities, railroad corridor, Mississippi River, etc.). Access to the trail from at Barge Channel Road is possible, but there is a heavy amount of truck traffic and the road is often blocked by trains traffic at the intersection with Concord Street. If this intersection were to be upgraded in the future, this connection would be more viable.

A copy of meeting summary can be obtained by contacting the project manager listed in Section 1 of this Project Memorandum.

Public Hearings

A public hearing is not anticipated.

Other Meetings

Representatives from the City of Saint Paul hosted a booth at the Saint Paul Bicycle Classic on September 11, 2016 to provide information to participants and solicit input.

Representative from Dakota County provided information on the project at the Mississippi River Regional Trail Spring Lake Park East segment on September 15, 2016.

Together with the Saint Paul Port Authority, representatives from the City of Saint Paul conducted a meeting the Southport Terminal businesses to provide information about the project, specifically as it relates to the Barge Channel Road area.

Other potential public engagement opportunities include:

- Additional Public Information Meetings
- West Side Community Organization meeting
- Saint Paul Bike Coalition/Saint Paul Women on Bikes.

8. Social, Economic and Environmental (SEE) Impacts

Section 4(f) of the Transportation Act Of 1966

The proposed project will impact Lilydale Regional Park, owned by City of Saint Paul. The proposed project is an independent bikeway/walkway project, covered by the bikeway/walkway Negative Declaration Statement.

The proposed project will impact Harriet Island Regional Park, owned by City of Saint Paul. The proposed project is an independent bikeway/walkway project, covered by the bikeway/walkway Negative Declaration Statement.

The proposed project will impact Kaposia Landing Park, owned by City of South Saint Paul. The proposed project is an independent bikeway/walkway project, covered by the bikeway/walkway Negative Declaration Statement.

See Exhibits 6A-6C for a depiction of the project relative to the parks and the attached written approval from officials having direct jurisdiction over the Section 4(f) properties.

Section 6(f) of the Land and Water Conservation Fund Act of 1965

The project impacts the Harriet Island Regional Park, which is owned by City of Saint Paul and was developed with funds from the Land and Water Conservation Fund (LAWCON).

The proposed project involves the construction of a 10-ft. wide paved trail connection approximately 300-ft long from near the park entrance to the intersection of Water Street and Plato Boulevard. The alignment of the trail will be designed to minimize the extent of grading. It is anticipated that a few trees will need to be removed to accommodate the trail and its clear zone. The sponsor of the project owns the park, so no property will be transferred due to the project. The trail itself serves a recreational purpose and enhances access to the recreational activities in the park. Therefore, the project will not convert any of the park land.

Section 106 of the National Historic Preservation Act Of 1996

It has been determined that no historic properties eligible for or listed in the National Register of Historic Places will be affected by the project.

See attached letter from the MnDOT's Cultural Resources Unit (CRU).

Endangered Species Act of 1973

The project "may affect, but not likely to adversely affect" federally listed threatened, endangered, proposed, and candidate species or critical habitat. See attached letter from MnDOT OES on behalf of the USFWS.

Right-Of-Way

This project will require approximately:
1.6 acres of permanent right of way acquisition from 17 parcels, 0.9 acres of temporary easements from 24 parcels, and 4 parcels secured by permit or agreement.

This project will not require relocations of businesses or residences.

This project will not require changes in access.

Acquisition and relocation will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Environmental Due Diligence will be performed in accordance with MnDOT Technical Memorandum No. 13-12-ENV-02 prior to making any offers to acquire of any property to be state owned.

Hazardous Materials

A Phase II Environmental Site Assessment (ESA) was prepared for the in the area near the Bridge R0733 construction and the trail extension to the north in South Saint Paul. This segment of the proposed trail is located on the former "Port Crosby Dump", which received successive uncontrolled dumping of mixed demolition waste.

The ESA also addresses the trail segment in Lilydale. Soil analytical results from that investigation did not exceed action levels, but the presence of some debris may be indicative that buried materials are present.

A Response Action Plan (RAP) Feasibility Study has been conducted for the aforementioned areas. Respective recommendations from the study will be incorporated into the design and construction of the project.

The potential for impacts from contaminated properties in the other areas of the project have been considered, but because of the project location and nature of the planned work, there is little potential for encountering contaminated materials. Any potentially contaminated materials encountered during construction will be handled

and treated in accordance with applicable state and federal regulations.

The project will not require bridge demolition.

The project will not require building demolition.

The project will not require bridge relocation.

The project will not require building relocation.

Farmland Protection Policy Act Of 1981

The project will not involve the acquisition of farmland.

Air Quality

The project will not significantly impact air quality.

Highway Traffic Noise

The project is not a Type 1 project. Procedures for the abatement of highway traffic noise do not apply in accordance with 23 CFR 772.

Construction Noise

Construction noise has not been considered and no impact is anticipated.

Floodplain Management

The project will encroach into a floodplain.

Floodplain encroachment will be non-significant. The provisions of Executive Order 11988 have been met.

A Floodplain Assessment is attached.

Wetland Protection

The project will encroach in a wetland.

The Project will include non-significant wetland encroachment. The provisions of Executive Order 11990 have been met.

A Wetland Assessment including a Two Part Finding has been completed and is

attached.

Section 404 of the Clean Water Act (CWA)

The project will involve placement of fill into waters of the U.S.

The project will be covered by a Section 404 Permit: General Permit (GP), which will be submitted to MnDOT State Aid prior to project authorization.

Water Pollution / MPCA--NPDES

The construction activities will disturb 1 or more acre of land area (including clearing, grading, and excavation). A Phase II NPDES permit is required. The permit will be submitted to MnDOT State Aid prior to project authorization, and a Stormwater Pollution Prevention Plan (SWPPP) will be included in the construction plan package.

This project will increase the existing impervious surface area as a result of trail construction. The existing drainage patterns will be maintained. Stormwater runoff from trails disconnected from roadways will be treated with grassed filter strips, grassed waterways, or filter trenches where feasible. Stormwater runoff from trails directly connected to roadways will enter the in-place storm sewer systems.

The project is located in the Lower Mississippi River Watershed Management Organization (LMRWMO), which has no formal permitting program. The project will be designed to meet the requirement of the NPDES Construction Stormwater Permit and the engineering design standards of the LMRWMO, Cities of Saint Paul, South Saint Paul, and Lilydale, and Dakota County. Runoff from the project ultimately discharges to the Mississippi River, which is listed by the MPCA as an impaired waterbody. A Storm Water Pollution Prevention Plan will be prepared in accordance with the NPDES Construction Stormwater Permit.

Environmental Justice

The purpose of Executive Order 12898 is to identify, address, and avoid disproportionately high and adverse human health or environmental effects on minority and low income populations.

Readily identifiable minority and low-income populations are located adjacent to the project area. Due to the nature of the project, there are no minority or low income populations adversely or disproportionately affected by the project. Therefore, there are no Environmental Justice concerns on this project.

State Environmental Review (MEQB)

The project has been determined to be an exemption category project in accordance with current Minnesota Rules, Part 4410.4600, Subp.14.

Controversy

The project is not anticipated to be controversial.

Federal Action Determination Statement

Based on the results of the environmental study in accordance with 23 CFR 771.117, summarized herein, it is determined that the proposed project is a Class II Action (Categorical Exclusion). This action will have non-significant social, economic, or environmental impacts, and is anticipated to have no foreseeable change on the quality of the human environment.

AGENCY COORDINATION

County Coordination:

Dakota County is a co-sponsor of the project with the City of Saint Paul and will be involved in all aspects of the project development for the trail segments that are located in Lilydale and South St Paul. Work will be conducted along Plato Boulevard within Ramsey County right-of-way. County staff will be involved in planning and design activities and will review construction documents for approval.

Municipal Coordination:

The City of Saint Paul is a sponsor of the project and will be involved in all aspects of the project development. Staff from the cities of Lilydale and South Saint Paul will be involved in the development of the project and will review construction documents for approval.

Agency Permits or Agreements	REQ'D
USACE Section 404	Y
Coast Guard	N
DNR--Water	Not likely.
DNR--Public Waters	Y
MPCA--NPDES	Y

MPCA--Section 401	Y
Watershed District	N
Wetland Conservation Act / BSWR	Y
Railroad	Y
Metropolitan Airports Commission	Y

USACE Section 404 Permit Status / Date Received
Permit will be submitted to Metro State Aid prior to project authorization.

DNR--Water Permit Status / Date Received
A permit will be required if the contractor's dewatering operations necessitate it.

DNR-- Public Waters Permit Status / Date Received
Permit will be submitted to Metro State Aid prior to project authorization.

MPCA-- NPDES Permit Status / Date Received
Permit will be submitted to Metro State Aid prior to project authorization.

UMPCA -- Section 401 Permit Status / Date Received
Permit will be submitted to Metro State Aid prior to project authorization.

Wetland Conservation Act / BSWR Permit Status / Date Received
Permit will be submitted to Metro State Aid prior to project authorization.

Railroad Permit Status / Date Received
Overpass and crossing agreements will be submitted to Metro State Aid prior to project authorization.

Metropolitan Airports Commission Permit Status / Date Received
Limited Use Permit will be submitted to Metro State Aid prior to project authorization.

9. DESIGN STUDY

This project will be designed in accordance with the FHWA-MnDOT Stewardship Agreement. For this project, the following design standards are applicable.

8820.9936 Minimum Design Standards, Urban; New or Reconstruction Projects

8820.9946 Minimum Design Standards, Urban; Reconditioning Projects

8820.9995 Minimum Bicycle Path Standards

AASHTO LRFD Bridge Design Specifications

AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges

AASHTO Policy on Geometric Design of Highways and Streets

MnDOT LRFD Bridge Design Manual

Minnesota Manual on Uniform Traffic Control Devices

Americans with Disabilities Act (ADA)

ROADWAY DATA

Lilydale Road [County Highway 45] – (See Exhibit 2B for the Typical Section)
Segment Termini: From: 500-ft North of Intersection of Lilydale Road and TH 13 To: 700-ft North of Intersection of Lilydale Road and TH 13

Design Element	Existing Condition	Proposed Design	Required
Roadway Type	Rural (Non-State Aid)	Urban (Non-State Aid)	
Project or segment length, ft	650	650	
Functional Class	Local	Local	
ADT (Year)	2600 (2018)	2600 (2038)	
Heavy Commercial, %	N/A	N/A	
Speed, mph	30	30	30
Thru Lanes each direction	1	1	
Lane width, ft	11	9 min., 11 preferred	9
Roadway Surfacing type	Bituminous	Bituminous	Bituminous
Structural Design Strength, ton	N/A	N/A	9
Shoulder Width, ft	2	2	2

Shoulder Surfacing type	Bituminous	Bituminous	Bituminous
Recovery Area	N/A	N/A	N/A
Inslope, rise	N/A	N/A	N/A
Approach Sideslopes	N/A	N/A	N/A
Turn Lane, ft	N/A	N/A	N/A
Bypass Lane, ft	N/A	N/A	
Right-of-Way Width, ft	90		
Median Type, ft	N/A	8	N/A
Median Type, raised/painted Raised	N/A	Raised	N/A
Median Curb Reaction, ft	N/A	1	1
Curb & Gutter type	N/A	B612	
Curb Reaction, ft	N/A	1	1
Clearance from Face/Curb, ft	N/A	1.5	1.5
Parking Lane, ft	N/A	N/A	N/A
Storm Sewer	N	Y	
Utilities	Y	Y	
Sidewalk Width	N/A	N/A	
Distance from edge of traveled way to sidewalk, ft	N/A	N/A	
Curb Ramps with detectable warning	Y	Y	
Traffic Signal(s)	N/A	N/A	
Roundabout	N/A	N/A	
Roadway Lighting, Type	Spot, cobra head	To be determined	
Railroad Crossing	N/A	N/A	

Landscaping	N/A	N/A	
Signing	Per MnMUTCD	Per MnMUTCD	
Pavement Marking	Per MnMUTCD	Per MnMUTCD	

Plato Boulevard (see Exhibit 2C for the Typical Sections)
Segment Termini: From: Water Street To: Wabasha Street

Design Element	Existing Condition	Proposed Design	Required
Roadway Type	Urban	Urban	
Project or segment length, ft	1900'	1900'	
Functional Class	Major Collector	Major Collector	
ADT (Year)	4900 (2018)	4900 (2038)	
Heavy Commercial, %	N/A	N/A	
Speed, mph	30	30	30
Thru Lanes each direction	2	1	
Lane width, ft	11	11	11
Roadway Surfacing type	Bituminous	Bituminous	Bituminous
Structural Design Strength, ton	N/A	N/A	9
Shoulder Width, ft	2	2	2
Shoulder Surfacing type	Bituminous	Bituminous	Bituminous
Recovery Area	N/A	N/A	N/A
Inslope, rise	N/A	N/A	N/A
Approach Sideslopes	N/A	N/A	N/A
Turn Lane, ft	16	11	11

Bypass Lane, ft	N/A	N/A	
Right-of-Way Width, ft	110	110	N/A
Median Type, ft	10	6	N/A
Median Type, raised/painted Raised	Raised	Raised	Raised
Median Curb Reaction, ft	2	2	2
Curb & Gutter type	B624	B624	
Curb Reaction, ft	2	2	2
Clearance from Face/Curb, ft	1.5	1.5	N/A
Parking Lane, ft	N/A	N/A	N/A
Storm Sewer	Y	Y	
Utilities	Y	Y	
Sidewalk Width	5	5	
Distance from edge of traveled way to sidewalk, ft	15	25	
Curb Ramps with detectable warning	Y	Y	
Traffic Signal(s)	Wabasha Street	Wabasha Street	
Roundabout	N/A	N/A	
Roadway Lighting, Type	Median, cobra head	Median, cobra head	
Railroad Crossing	N/A	N/A	
Landscaping	Mature boulevard trees	Mature boulevard trees	
Signing	Per MnMUTCD	Per MnMUTCD	
Pavement Marking	Per MnMUTCD	Per MnMUTCD	

Lafayette Road (TH 52) East Frontage Road (see Exhibit 2D for the Typical Section)

Segment Termini: From: 400' South of Plato Boulevard 800’ North of Eaton Street
To: 1200' South of Plato Boulevard Eaton Street

Design Element	Existing Condition	Proposed Design	Required
Roadway Type	Urban	Urban	
Project or segment length, ft	1600'	1600'	
Functional Class	Local	Local	
ADT (Year)	6100 (2018)	6100 (2038)	
Heavy Commercial, %	N/A	N/A	
Speed, mph	35	35	30
Thru Lanes each direction	2	2	
Lane width, ft	12	12	11
Roadway Surfacing type	Bituminous	Bituminous	Bituminous
Structural Design Strength, ton	N/A	N/A	9
Shoulder Width, ft	2	2	2
Shoulder Surfacing type	Bituminous	Bituminous	Bituminous
Recovery Area	N/A	N/A	N/A
Inslope, rise	N/A	N/A	N/A
Approach Sideslopes	N/A	N/A	N/A
Turn Lane, ft	N/A	N/A	N/A
Bypass Lane, ft	N/A	N/A	
Right-of-Way Width, ft	300	300	300
Median Width, ft	N/A	N/A	N/A

Median Type, raised/painted Raised	N/A	N/A	N/A
Median Curb Reaction, ft	N/A	N/A	N/A
Curb & Gutter type	B624	B624	
Curb Reaction, ft	4	2	2
Clearance from Face/Curb, ft	1.5	1.5	N/A
Parking Lane, ft	N/A	N/A	N/A
Storm Sewer	Y	Y	
Utilities	Y	Y	
Sidewalk Width	N/A	N/A	
Distance from edge of traveled way to sidewalk, ft	N/A	N/A	
Curb Ramps with detectable warning	N/A	Y	
Traffic Signal(s)	N/A	N/A	
Roundabout	N/A	N/A	
Roadway Lighting, Type	Cobra head	Cobra head	
Railroad Crossing	N/A	N/A	
Landscaping	N/A	N/A	
Signing	per MnMUTCD	per MnMUTCD	
Pavement Marking	per MnMUTCD	per MnMUTCD	

BRIDGE DATA

Bridge Number R0733 (see Exhibit 2F for the Typical Section):

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bridge or Culvert Number	N/A	R0733	
Location	N/A	Over Union Pacific Railroad	
Bridge or Culvert Type	N/A	Steel truss main span, P/S concrete approach spans	
Design Loading	N/A	90 psf Pedestrian or H10 Truck	90 psf Pedestrian or H10 Truck
Bridge Roadway width, ft	N/A	12	12
Sidewalk, ft	N/A		
Bridge Length, ft	N/A	739	
Bridge: # of Spans	N/A	10	
Skew	N/A	41	
Guardrail	N/A	No	No
Horizontal Alignment	N/A	The desired horizontal alignment of the bridge was that which avoided impacting the UPRR right of way and Kaposia Park ball fields. Standard horizontal curves desired.	
Vertical Alignment	N/A	Maximum profile grade of the bridge to be 5%.	
Hydraulics	N/A	N/A	
Vertical & Horizontal	N/A	2'-0" horizontal, 10'-0" vertical above	

Clearance		25'-0" horizontal, 23'-4" vertical below	

Bridge Number R0738 (see Exhibit 2F for the Typical Section):

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bridge or Culvert Number	N/A	R0738	
Location	N/A	Over Airport Marsh	
Bridge or Culvert Type	N/A	Timber boardwalk	
Design Loading	N/A	90 psf pedestrian or H10 vehicle	90 psf pedestrian or H10 vehicle
Bridge Roadway width, ft	N/A	12	12
Sidewalk, ft	N/A	N/A	
Bridge Length, ft	N/A	354	
Bridge: # of Spans	N/A	22	
Skew	N/A	0	
Guardrail	No	No	No
Horizontal Alignment	N/A	The desired horizontal alignment is guided by the most efficient crossing of the marsh.	
Vertical Alignment	N/A	Maximum profile grade of the bridge to be 5%. Limited the amount of fill in wetland.	
Hydraulics	N/A	N/A	
Vertical & Horizontal Clearance	N/A	2'-0" horizontal, 10'-0" vertical	

Bridge Number R0739 (see Exhibit 2F for the Typical Section):

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bridge or Culvert Number	N/A	R0739	
Location	N/A	Over Airport Marsh	
Bridge or Culvert Type	N/A	Timber boardwalk	
Design Loading	N/A	90 psf pedestrian or H10 vehicle	90 psf pedestrian or H10 vehicle
Bridge Roadway width, ft	N/A	12	12
Sidewalk, ft	N/A	N/A	
Bridge Length, ft	N/A	162	
Bridge: # of Spans	N/A	10	
Skew	N/A	0	
Guardrail	No	No	No
Horizontal Alignment	N/A	The desired horizontal alignment is guided by the most efficient crossing of the marsh.	
Vertical Alignment	N/A	Maximum profile grade of the bridge to be 5%. Limited the amount of fill in wetland.	
Hydraulics	N/A	N/A	
Vertical & Horizontal Clearance	N/A	2'-0" horizontal, 10'-0" vertical	

BIKE PATH DATA

Segment Termini: From: Big Rivers Regional Trail To: Lilydale Regional Park (see Exhibit 2B for the Typical Section)

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bike Path / Trail Type	N/A	Off Road Two Way Multi Use	
Path Width, ft	N/A	8 min, 10 preferred	8
Path Surfacing	N/A	Bituminous	
Shoulder Width, ft	N/A	2	2
Shoulder Surfacing	N/A	Unsurfaced	
Clear Zone, ft	N/A	2	2
Inslope, rise:run	N/A	1:2	1:2
Design Speed, mph	N/A	20	20
Maximum Grade, %	N/A	5.0	8.3
Vertical Clearance, ft	N/A	10	10
Lead-In Guardrail or Fencing	N/A	N/A	N/A
Distance from Roadway, ft	N/A	2	2
ADT of Roadway	2600	2600	N/A

Segment Termini: From: Water Street To: Wabasha Street (see Exhibit 2C for the Typical Section)

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bike Path / Trail Type	N/A	Off Road Two Way Multi Use	
Path Width, ft	N/A	8 min., 10	8

		preferred	
Path Surfacing	N/A	Bituminous	
Shoulder Width, ft	N/A	2	2
Shoulder Surfacing	N/A	Unsurfaced	
Clear Zone, ft	N/A	2	2
Inslope, rise:run	N/A	1:2 max.	1:2 max.
Design Speed, mph	N/A	20	20
Maximum Grade, %	N/A	5.0	8.3
Vertical Clearance, ft	N/A	10	10
Lead-In Guardrail or Fencing	N/A	N/A	N/A
Distance from Roadway, ft	N/A	5 preferred	2
ADT of Roadway	4900	4900	N/A

Segment Termini: From: Wabasha Street To: Robert Street
(see Exhibit 2C for the Typical Section)

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bike Path / Trail Type	N/A	Off Road Two Way Multi Use	
Path Width, ft	N/A	8 min., 10 preferred	8
Path Surfacing	N/A	Bituminous	
Shoulder Width, ft	N/A	2	2
Shoulder Surfacing	N/A	Unsurfaced	
Clear Zone, ft	N/A	2	2
Inslope, rise:run	N/A	1:2 max.	1:2 max.
Design Speed, mph	N/A	20	20

Maximum Grade, %	N/A	5.0	8.3
Vertical Clearance, ft	N/A	10	10
Lead-In Guardrail or Fencing	N/A	N/A	N/A
Distance from Roadway, ft	N/A	5 preferred	2
ADT of Roadway	6900	6900	N/A

Segment Termini: From: Robert Street To: Lafayette Road
(see Exhibit 2C for the Typical Section)

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bike Path / Trail Type	N/A	Off Road Two Way Multi Use	
Path Width, ft	N/A	8 min., 10 preferred	8
Path Surfacing	N/A	Bituminous	
Shoulder Width, ft	N/A	2	2
Shoulder Surfacing	N/A	Unsurfaced	
Clear Zone, ft	N/A	2	2
Inslope, rise:run	N/A	1:2 max.	1:2 max.
Design Speed, mph	N/A	20	20
Maximum Grade, %	N/A	5.0	8.3
Vertical Clearance, ft	N/A	10	10
Lead-In Guardrail or Fencing	N/A	N/A	N/A
Distance from Roadway, ft	N/A	5 preferred	2
ADT of Roadway	12500	12500	N/A

Segment Termini: From: Lafayette Road To: Airport Marsh
(see Exhibits 2D and 2E for the Typical Section)

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bike Path / Trail Type	N/A	Off Road Two Way Multi Use	
Path Width, ft	N/A	8 min., 10 preferred	8
Path Surfacing	N/A	Bituminous	
Shoulder Width, ft	N/A	2	2
Shoulder Surfacing	N/A	Unsurfaced	
Clear Zone, ft	N/A	2	2
Inslope, rise:run	N/A	1:2 max.	1:2 max.
Design Speed, mph	N/A	20	20
Maximum Grade, %	N/A	5.0	8.3
Vertical Clearance, ft	N/A	10	10
Lead-In Guardrail or Fencing	N/A	N/A	N/A
Distance from Roadway, ft	N/A	5 preferred	2
ADT of Roadway	N/A	N/A	N/A

Segment Termini: From: Airport Marsh To: Kaposia Landing Park
(see Exhibit 2E for the Typical Section)

Design Element	Existing Condition	Proposed Design	Required Design Standards
Bike Path / Trail Type	N/A	Off Road Two Way Multi Use	
Path Width, ft	N/A	8 min., 10	8

		preferred	
Path Surfacing	N/A	Bituminous	
Shoulder Width, ft	N/A	2	2
Shoulder Surfacing	N/A	Unsurfaced	
Clear Zone, ft	N/A	2	2
Inslope, rise:run	N/A	1:2 max.	1:2 max.
Design Speed, mph	N/A	20	20
Maximum Grade, %	N/A	5.0	8.3
Vertical Clearance, ft	N/A	10	10
Lead-In Guardrail or Fencing	N/A	N/A	N/A
Distance from Roadway, ft	N/A	N/A	N/A
ADT of Roadway	N/A	N/A	N/A

10. Traffic During Construction

Existing pedestrian movements on existing sidewalks that are affected by the construction will be detoured during the construction of the trail. It is anticipated that the Lilydale Road traffic will be maintained during construction by constructing the road under traffic in two stages. A short term closure of westbound Plato Boulevard is anticipated. The designers will work with the City and County staff and affected stakeholders on staging and/or detours.

11. Design Exceptions

The proposed project does not meet State Aid Rules at all locations, there are design exceptions required for this project.

Design Exceptions are hereby requested with the following justifications and considerations.

A. Design standard the exception is from: 8820.9995, Minimum Bicycle Path Standards

Design element involved: Shoulder/Clear Zone

Required standard: 2 ft

Proposed “in lieu of” design: A reduced shoulder/clear zone is proposed for the Lilydale Road trail segment directly to the north of the railroad bridge as the trail follows along the horizontal curvature of the rail at the Pool and Yacht Club facility. See Exhibit 2B a depiction of the trail section and Exhibit 5A for the location of the proposed design exception.

Social Impacts

Degree to which the standard is reduced: The shoulder adjacent to the curb would be eliminated and the clear zone between the trail and the clear zone reduced to approximately 1 foot.

Effect on other standards: There is no effect on other standards.

User expectation/conformance/compatibility with the rest of the trail: In both the existing and proposed condition, on road bicycling is allowed in this area under a “share the road” scenario. It is anticipated that non-recreational bicyclists will continue to use the road and recreational users will utilize the off road trail.

Future compatibility: The design exception will be compatible with any future work associated with the trail and roadway.

Economics

Incorporating the standard trail design would require acquisition of additional permanent easement and significant alteration to the Pool and Yacht Club pool facility that is located on the east side of Lilydale Road. Dakota County conducted a detailed study analyzing the feasibility of altering the pool facility to allow for the implementation of a standard trail design. In addition, the study focused on improving the current horizontal sight distance issue that exists due to the curvature of the road and the presence of security/privacy fencing that parallels the roadway. The study investigated moving the pool to the east end of the Pool and Yacht Club property and reconfiguring the parking lot. The estimated cost to alter the property was $2,225,000 and had considerable utility, zoning, and permitting issues. Therefore, it was concluded that it would not be prudent or feasible to alter the pool facility to accommodate the standard trail design.

Environmental Impacts/Encroachments

There are no environmental impacts.

Mitigation

Traffic control: Advanced warning signs will be placed as appropriate. In addition, a solid centerline and edge stripes will be placed to guide users through the area.

Design betterments: Where space and geometry allows, the standard width clear zone trail section will be utilized.

Lighting: No additional lighting is proposed.

Conclusion: Due to the design, social, and environmental impacts of constructing to the standard, constructing to the level requested is the only practical alternative.

B. Design standard the exception is from: 8820.9995, Minimum Bicycle Path Standards

Design element involved: Shoulder/Clear Zone

Required standard: 2 ft

Proposed “in lieu of” design: A reduced shoulder/clear zone is proposed for the Plato Boulevard trail segment east of the railroad crossing near Starkey Street where the proposed trail passes between the existing chain link security fence and the railroad crossing signal base. See Exhibit 5B for the location of the proposed design exception.

Social Impacts

Degree to which the standard is reduced: The shoulder/clear zone adjacent to the curb would be reduced to approximately 1 foot on both sides of the trail at the location of the railroad crossing signal.

Effect on other standards: There is no effect on other standards.

User expectation/conformance/compatibility with the rest of the trail: The proposed design exception is located approximately 25 feet from the railroad crossing for which there is a stop condition, resulting in slower speeds than the 20 mph trail design. The standard design will be attained as the trail soon after it moving past the single railroad crossing signal.

Future compatibility: The design exception will be compatible with any future work associated with the trail and on the property to the north of the trail.

Economics

Designing the trail to meet design standards requires obtaining a permanent easement from the property owner on the adjacent parcel to allow for a portion of the trail to be located within the parcel. In order to construct the trail encroaching on the parcel would require the relocation of the security fence and loss of parking. The City of Saint Paul discussed obtaining an easement with representative of the owner of the parcel. The entire parcel, 41 Plato Boulevard, is planned to be acquired in the near future as part of a planned re-development. The owner of the parcel is elderly and in poor health and his representatives are not supportive of the effort involved in obtaining the easement when the parcel will be completely acquired.

An alternate to acquiring the easement is to narrow westbound Plato Boulevard to allow for the relocation of the railroad crossing signal. The cost to relocate the signal would be at least $100,000 and the amount of street work would be extensive.

Environmental Impacts/Encroachments
There are no environmental impacts.

Mitigation
Traffic control: Solid centerline and edge stripes will be placed to guide users through the area.

Design betterments: When the adjacent parcel is redeveloped, the City of Saint Paul intends to realign the trail, not only to attain the standard design, but also reduce the skew angle of the railroad crossing.

Lighting: No additional lighting is proposed.

Conclusion: Due to the design, social, and environmental impacts of constructing to the standard, constructing to the level requested is the only practical alternative.

C. Design standard the exception is from: 8820.9995, Minimum Bicycle Path Standards

Design element involved: Design speed

Required standard: 20 mph

Proposed “in lieu of” design: A reduced design speed is proposed for the segment south of Barge Channel Road due to substandard horizontal curves not meeting the 100’ minimum radius required for a 20 mph design. Two back-to-back horizontal curves with radii of 50’ are proposed due to the trail’s proximity to Barge Channel Road and the adjacent Gerdau Steel recycling plant property and storm water pond. See Exhibit 5C for the location of the proposed design exception.

Social Impacts
Degree to which the standard is reduced: The resulting design speed of the trail would be reduced to approximately 16 mph.

Effect on other standards: There is no effect on other standards.

User expectation/conformance/compatibility with the rest of the trail: The achieved design speed of 16 mph is reasonably close to the standard design of 20 mph that the user experiences on the adjacent trail segments. Southbound trail user speeds will be lower due to proximity to the railroad crossing. For northbound trail users, there is a safety benefit to beginning to slow the speeds as the user will need to yield to trains at the crossing.

Future compatibility: The design exception will be compatible with any future work associated with the trail and Barge Channel Road.

Economics

The cost difference between the standard design and the proposed design is negligible.

Environmental Impacts/Encroachments

As shown in Exhibit 5C, incorporating the full design would significantly impact the drainage pond. The existing stormwater capacity needs to be maintained, for which there is no right of way available for re-grading the lost volume. In addition, the full design impacts wetland and requires more vegetation removal.

Mitigation

Traffic control: Advanced warning signs will be placed as appropriate, and a solid centerline pavement stripe will be installed in the segment of the design exception.

Design betterments: There are no design betterments proposed.

Lighting: No additional lighting is proposed.

Conclusion: Due to the design, social, and environmental impacts of constructing to the standard, constructing to the level requested is the only practical alternative.

12. Safety Enhancements

A planned safety enhancement to the project is the incorporation of trail lighting where safety issues are apparent, such as at the ends of the boardwalks.

13. Other Work tied to this contract or additional phases

No additional work will be added to this contract and there are no other phases related to this project.

Attachments

Exhibits 1A – 1D	Project Layout
Exhibits 2A – 2F	Typical Sections
Exhibit 3A	Trail System Map
Exhibit 3B	Saint Paul Bicycle Plan Map
Exhibit 3C	Dakota County Park System Plan Map
Exhibit 3D	Mississippi River Trail Bikeway Map
Exhibits 4A – 4H	Right-of-Way Acquisitions
Exhibits 5A – 5C	Design Exceptions
Exhibits 6A - 6C	Section 4(f) Properties

MnDNR Natural Heritage Information System letter for state-listed species

MnDOT's Office of Environmental Services letter for federally-listed species determination

MnDOT's Cultural Resources Unit letter for historic/archaeological determination

Letters from the officials with jurisdiction over Section 4(f) properties

Email correspondence with MnDOT Aeronautics

Wetland Assessment

Floodplain Assessment

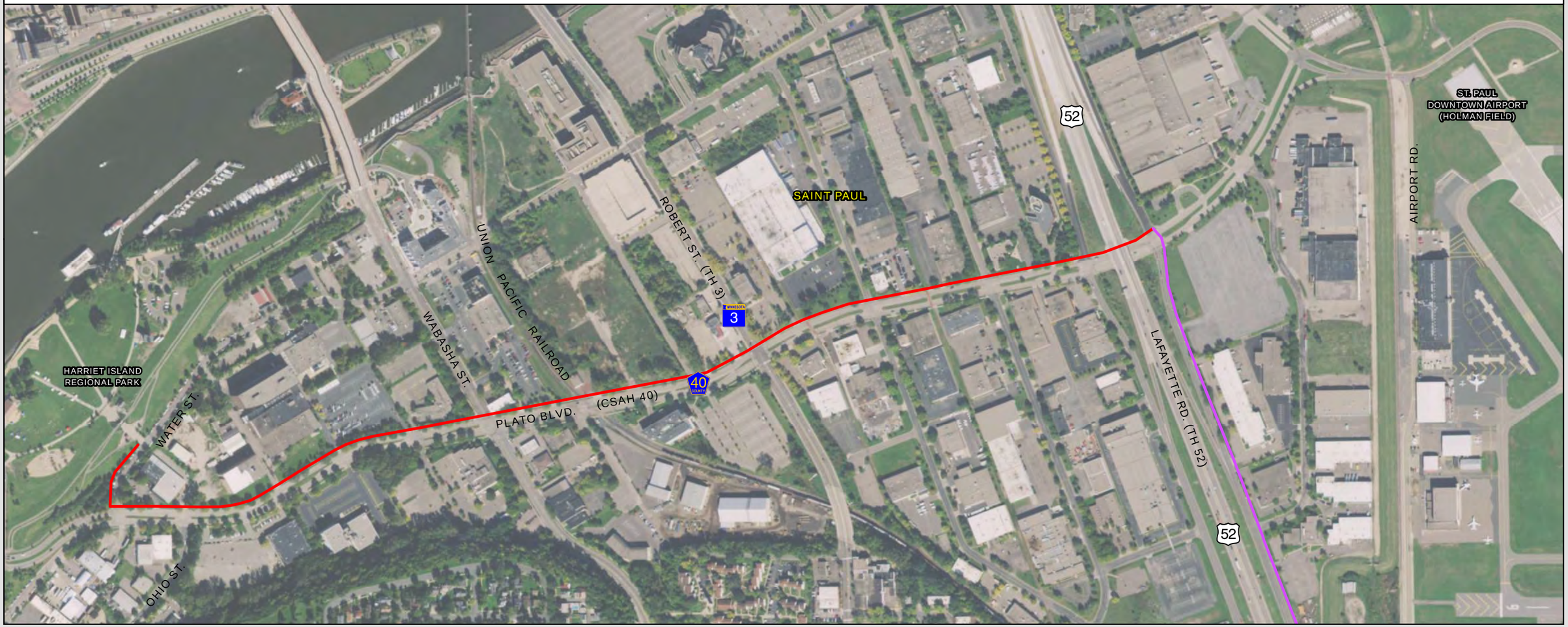
N
W E
S

REGIONAL TRAIL

- SEGMENT 1 - TRAIL A ALTERNATE 1
- SEGMENT 1 - TRAIL A ALTERNATE 2
- SEGMENT 1 - TRAIL A ALTERNATE 3 (PREFERRED)

(1) Union Pacific Railroad bridge to be reconstructed by others.

EXHIBIT 1A
PROJECT LAYOUT



REGIONAL TRAIL

- SEGMENT 2 - TRAIL B
- SEGMENT 3 - TRAIL C

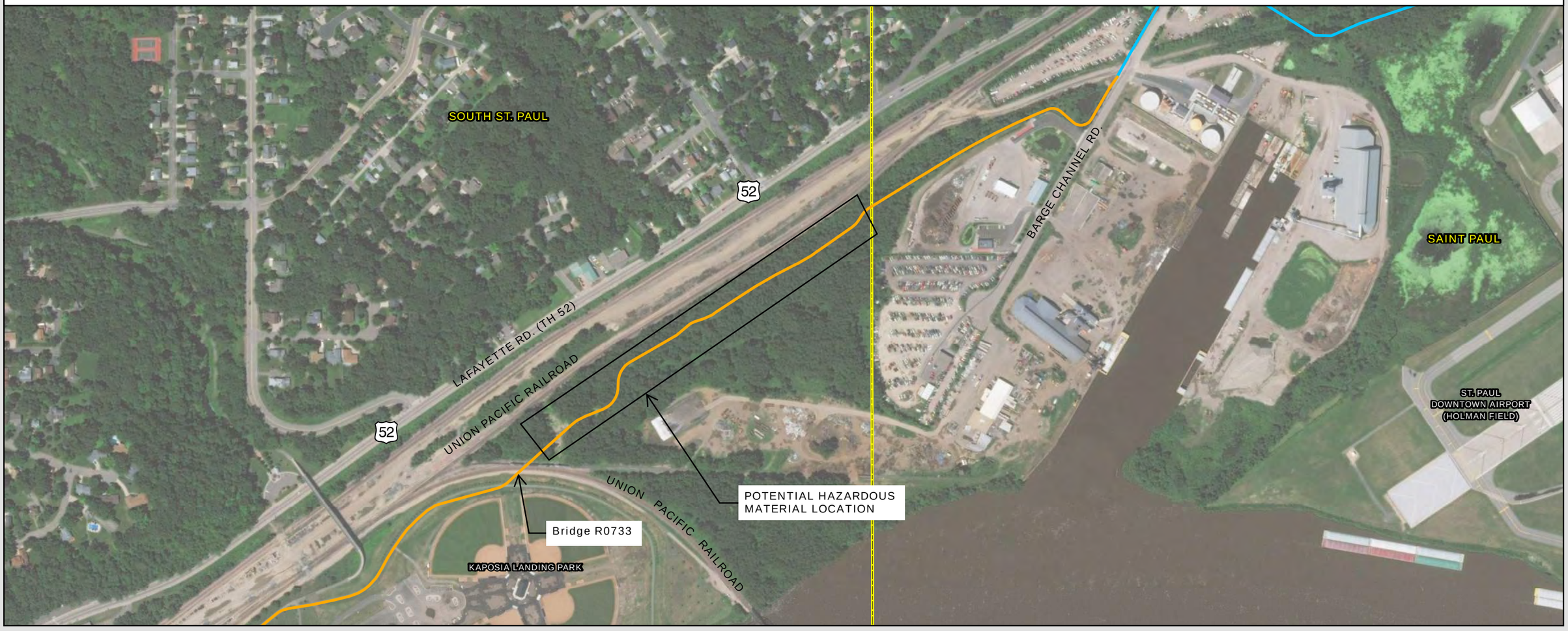
EXHIBIT 1B
PROJECT LOCATION

N
W E
S

REGIONAL TRAIL

- SEGMENT 3 - TRAIL C
- SEGMENT 4 - TRAIL D
- SEGMENT 5 - TRAIL E

EXHIBIT 1C
PROJECT LAYOUT



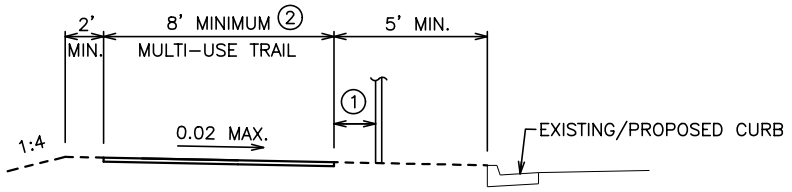
REGIONAL TRAIL

SEGMENT 4 - TRAIL D

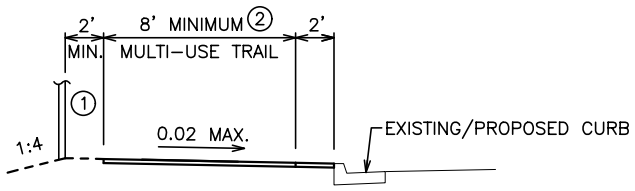
SEGMENT 5 - TRAIL E

EXHIBIT 1D
PROJECT LAYOUT

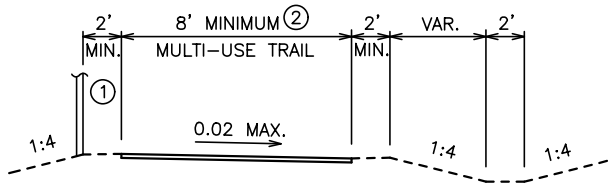
W S N E



SECTION A: ADJACENT TO ROADWAY – WIDE BOULEVARD



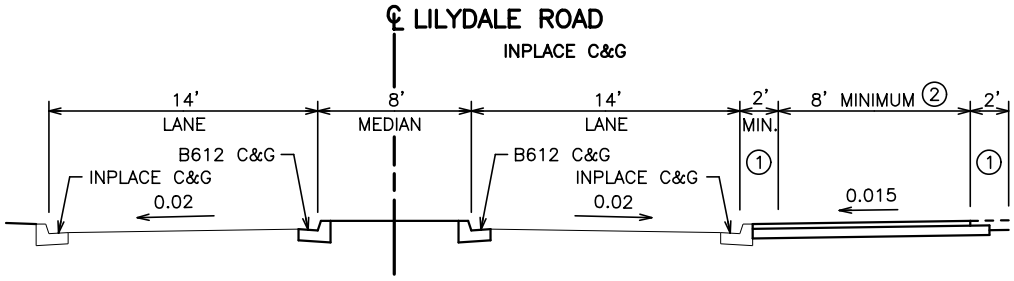
SECTION B: ADJACENT TO ROADWAY – NARROW BOULEVARD



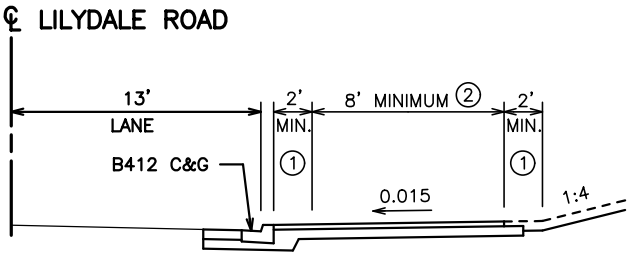
SECTION C: OFF ROAD

NOTE:
① 2' MINIMUM CLEAR ZONE (TYP.)
② 10' PREFERRED WIDTH

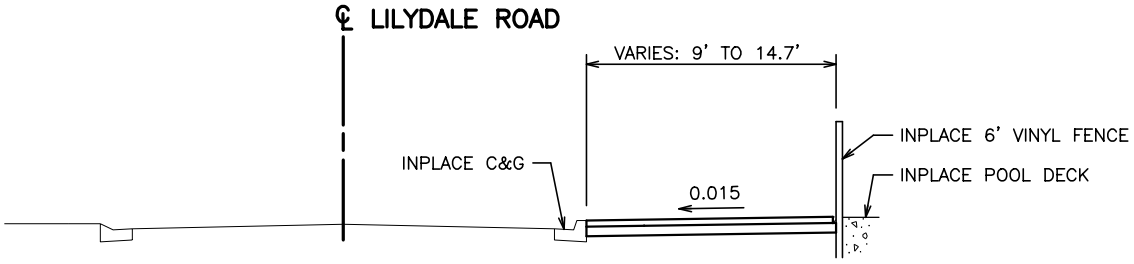
EXHIBIT 2A
TYPICAL SECTIONS



Segment 1: Lilydale Road – Center Median



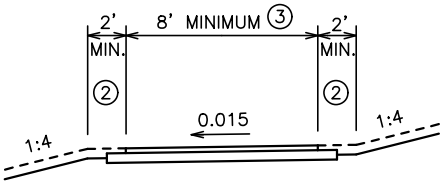
Segment 1: Lilydale Road Off Road



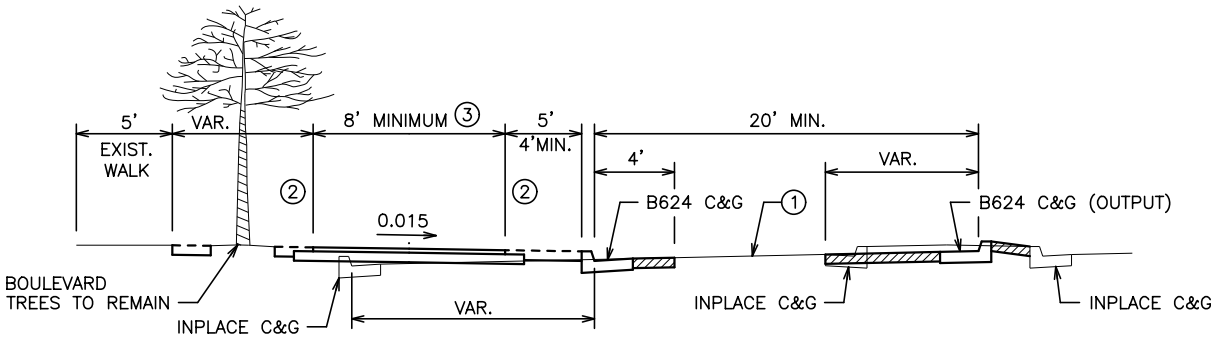
Segment 1: Lilydale Road at Pool and Yacht Club

NOTE:
① 2' MINIMUM CLEAR ZONE (TYP.)
② 10' PREFERRED WIDTH

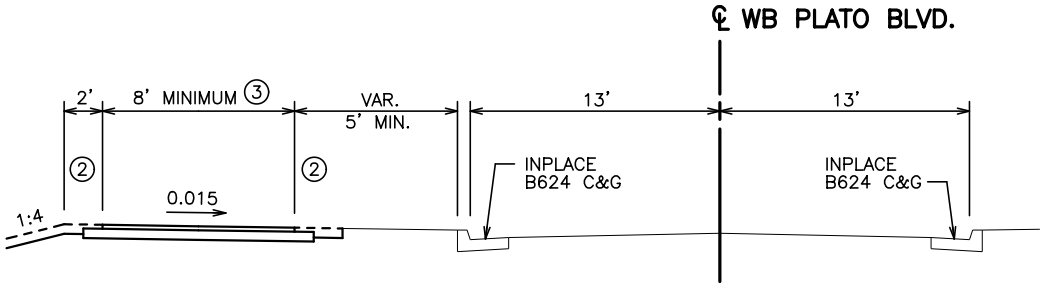
EXHIBIT 2B
TYPICAL SECTIONS



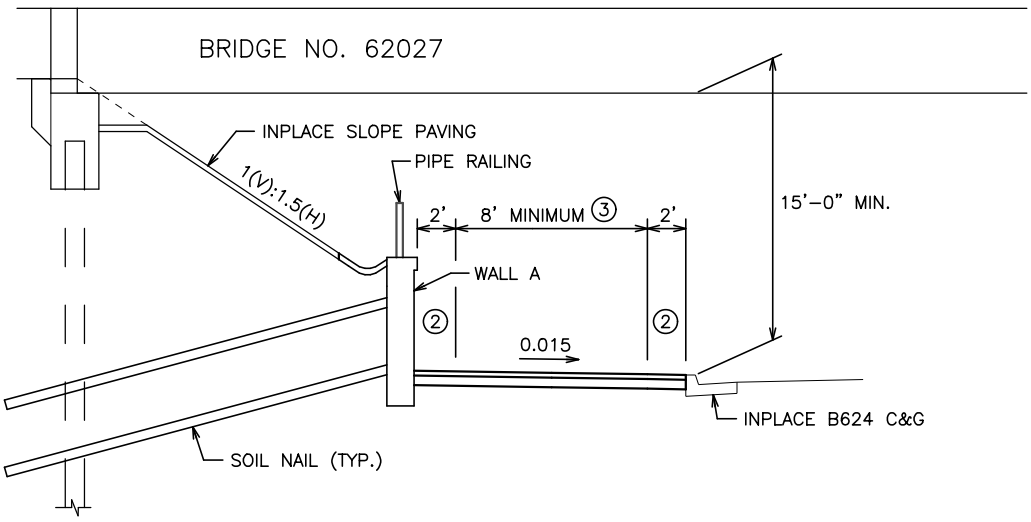
Segment 2: Harriet Island Regional Park to Water Street



Segment 2: WB Plato Boulevard – Water Street To Wabasha Street



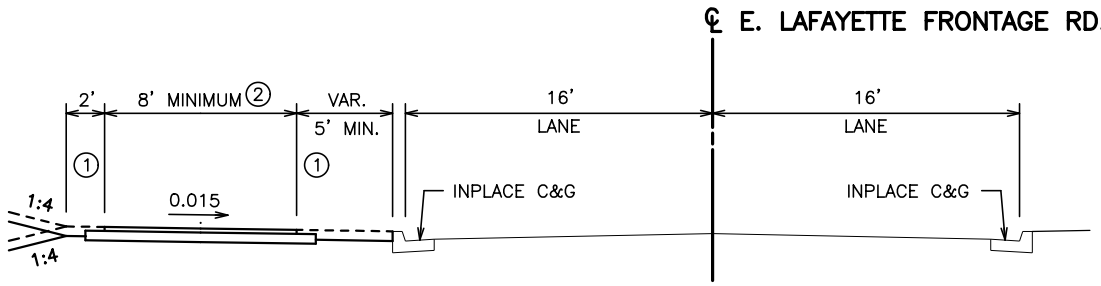
Segment 2: WB Plato Boulevard – Wabasha Street To Lafayette Freeway (TH 52)



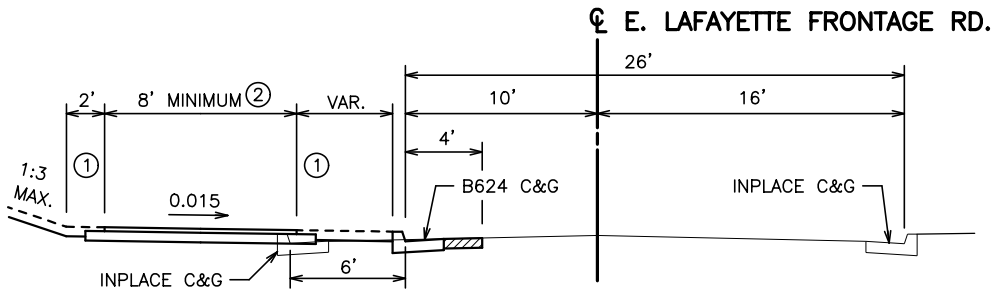
Segment 2: WB Plato Boulevard – at Lafayette Freeway (TH 52)

NOTE:
① MILL & OVERLAY
② 2' MINIMUM CLEAR ZONE (TYP.)
③ 10' PREFERRED WIDTH

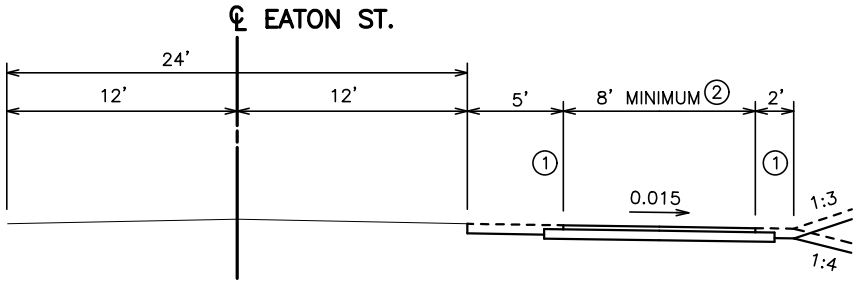
EXHIBIT 2C
TYPICAL SECTIONS



Segment 3: East Lafayette Frontage Road – Plato Boulevard to 435' South of Plato Boulevard



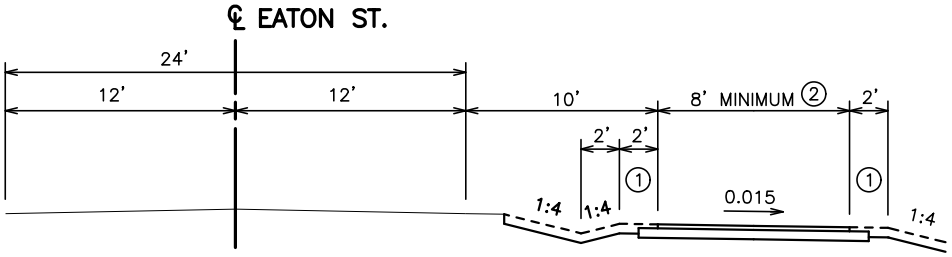
Segment 3: East Lafayette Frontage Road – 435' South of Plato Boulevard to Eaton Street



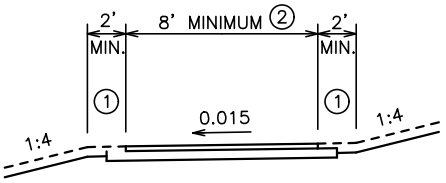
Segment 4: Eaton Street – East Lafayette Frontage Road to Airport Road

NOTE:
① 2' MINIMUM CLEAR ZONE (TYP.)
② 10' PREFERRED WIDTH

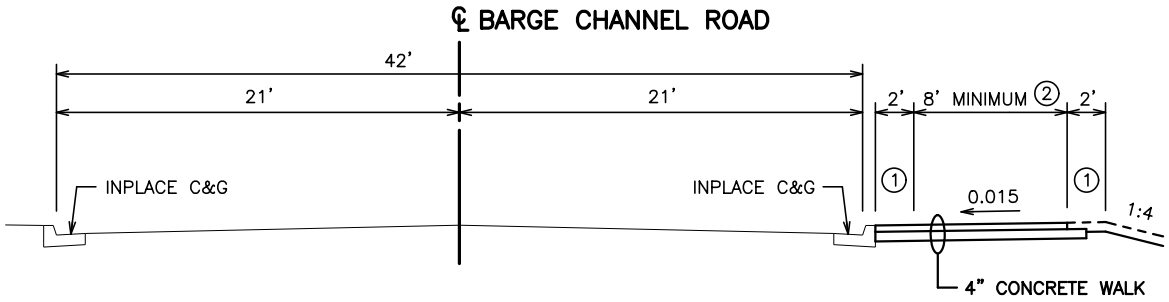
EXHIBIT 2D
TYPICAL SECTIONS



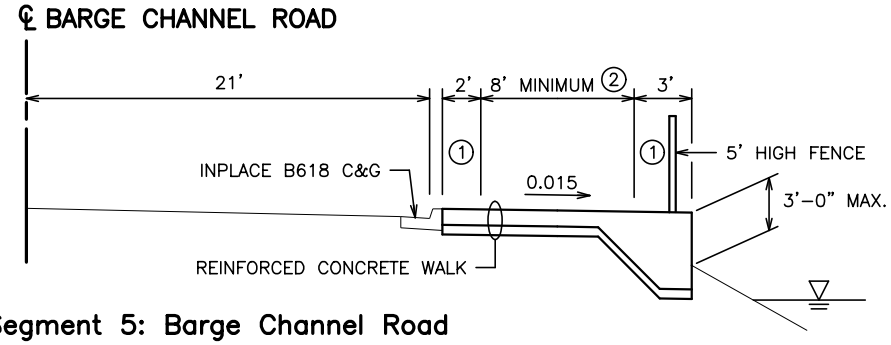
Segment 4: Eaton Street – Airport Road to Airport Marsh



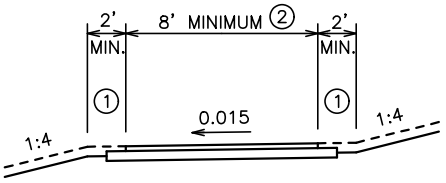
Segment 4: Airport Marsh to Barge Channel Road



Segment 5: Barge Channel Road



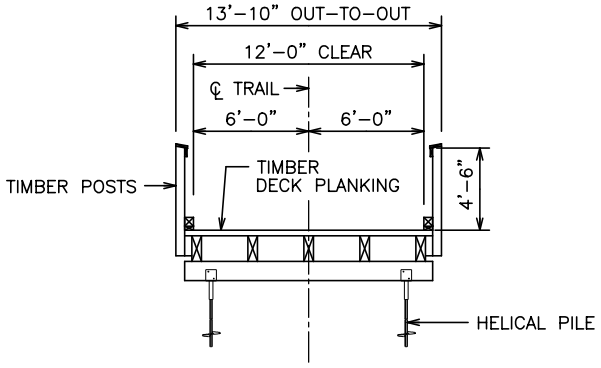
Segment 5: Barge Channel Road



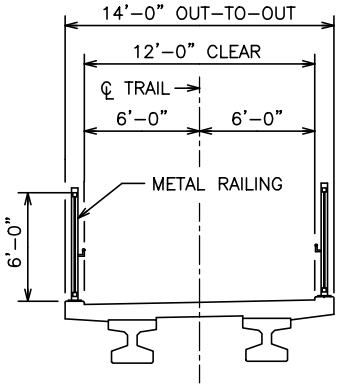
Segment 5: Barge Channel Road to Kaposia Landing Park

NOTE:
① 2' MINIMUM CLEAR ZONE (TYP.)
② 10' PREFERRED WIDTH

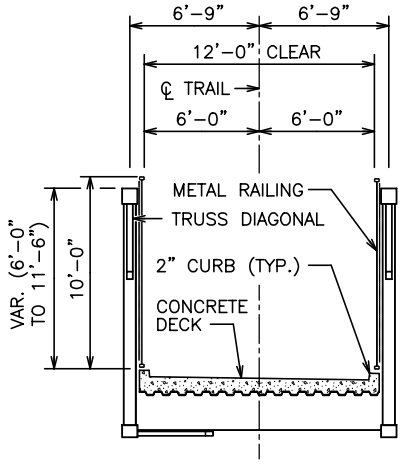
EXHIBIT 2E
TYPICAL SECTIONS



Bridge Nos. R0738 and R0739



Approach Spans



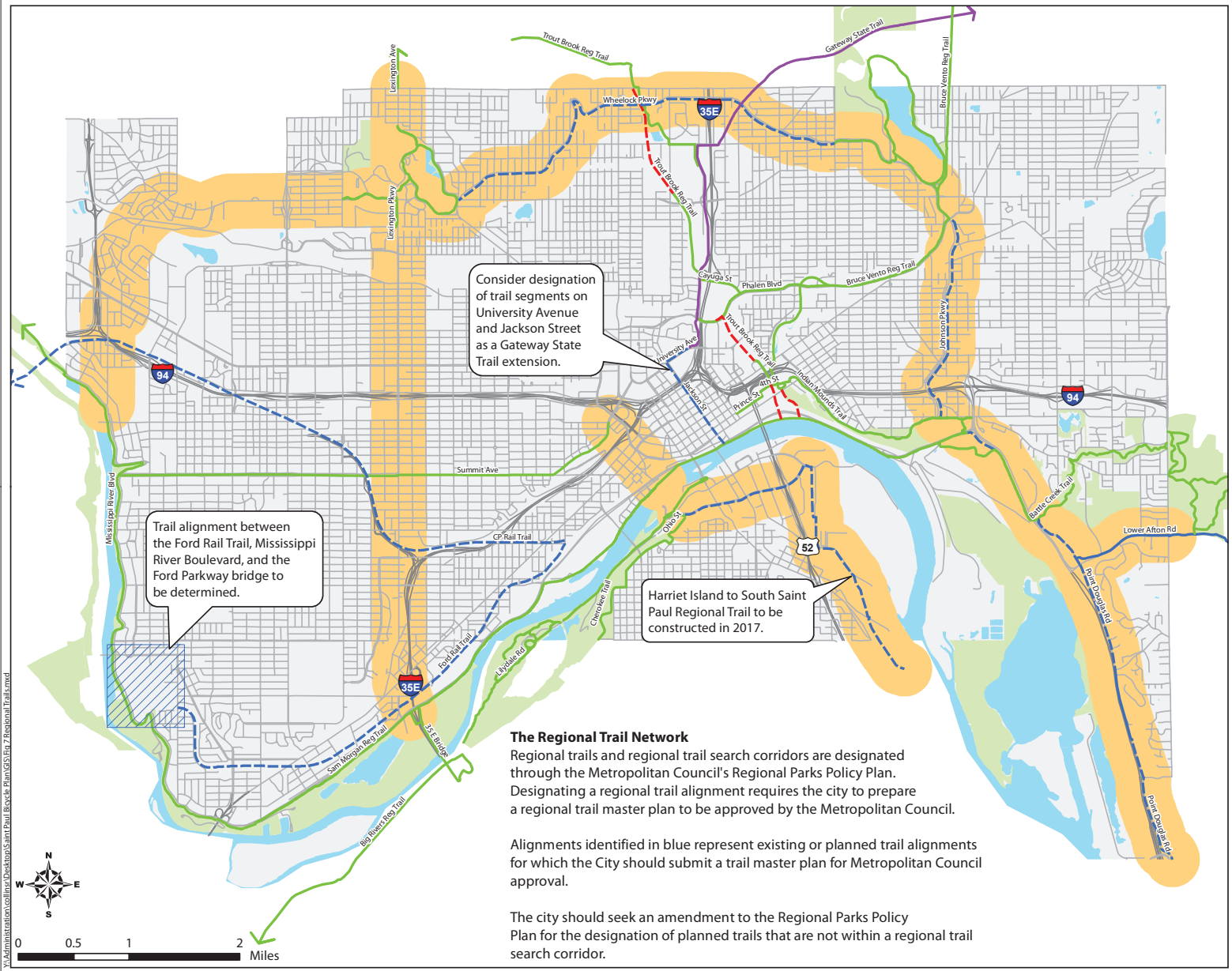
Main Span

Bridge No. R0733

EXHIBIT 2F
TYPICAL SECTIONS

HARRIET ISLAND TO SOUTH ST. PAUL REGIONAL TRAIL

EXHIBIT 3A
TRAIL SYSTEM MAP



The Regional Trail Network
Regional trails and regional trail search corridors are designated through the Metropolitan Council's Regional Parks Policy Plan. Designating a regional trail alignment requires the city to prepare a regional trail master plan to be approved by the Metropolitan Council.

Alignments identified in blue represent existing or planned trail alignments for which the City should submit a trail master plan for Metropolitan Council approval.

The city should seek an amendment to the Regional Parks Policy Plan for the designation of planned trails that are not within a regional trail search corridor.

Saint Paul Bicycle Plan

Legend

- Regional Trail Search Corridor
- Regional Park
- Existing Regional Trail or other Linear Trail within a Regional Park
- Planned Regional Trail with an approved Master Plan
- Existing Trail without an approved Master Plan
- Planned Trail without an approved Master Plan
- Gateway State Trail

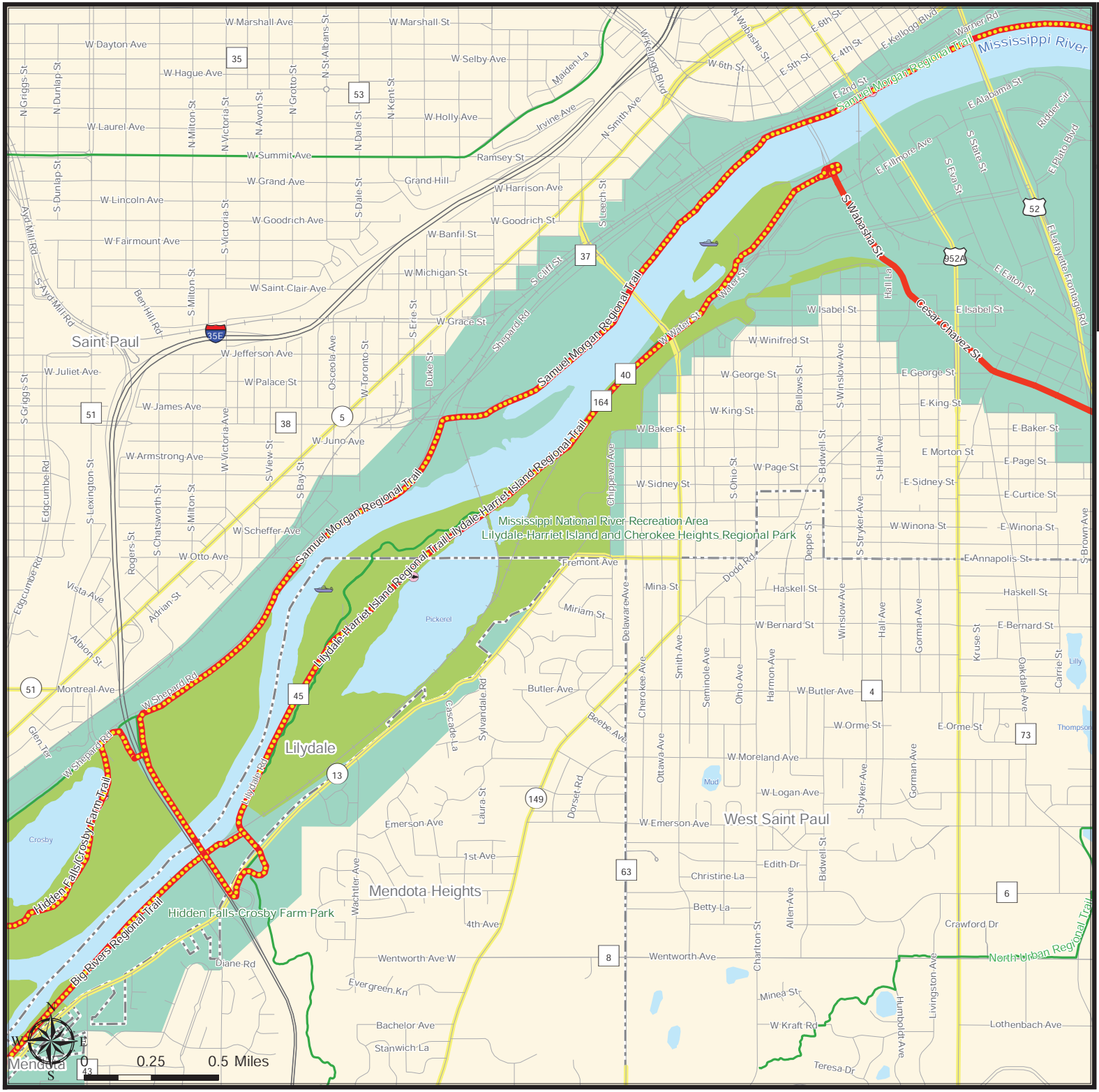
Figure 7
Existing and Planned Regional & State Trails

EXHIBIT 3B

Connected Places: *Ten-Year Priorities for Regional Greenway Trails*

Priority Regional Greenway Trails for the Next Ten Years

1.	**Mississippi River Regional Trail (MRRT) –** Inver Grove Heights to Hastings	14 miles
2.	**North Urban Regional Trail –** final segment	1 mile
3.	**Minnesota River Regional Trail –** Savage to 494	7 miles
4.	**Rosemount River Access Greenway Regional Trail –** Rosemount to MRRT	5 miles
5.	**Mississippi River Regional Trail –** South St. Paul to St. Paul	1 mile
6.	**Cannon Valley Regional Trail** – Byllesby East to Cannon Falls	1 mile
7.	**North Creek Greenway** (seeking regional status) – MN Zoo to Vermillion River	9 miles
8.	**Lake Marion Greenway Regional Trail** – Lake Marion to Cedar Avenue	7 miles
9.	**Vermillion River Greenway Regional Trail –** Cedar Ave. to Vermillion Park	6 miles
		Total = 51 miles



Lilydale/ St. Paul

Metro Map Inset 11

Mississippi River Trail Bikeway
U.S. Bicycle Route (USBR) 45

Details on MRT Route:

- MRT Route on Road
- MRT Route on Existing Roads with Limitations (shoulder width, sightlines, surface)
- MRT Route on Existing Trails

Existing Recreation Facilities:

- Fishing Opportunities
- Water Access Site

- Existing Federal, State and Regional Bikeable Trails
- State and Regional Parks
- Mississippi National River and Recreation Area (MNRRA)
- Federal and State Forests
- National Wildlife Refuge

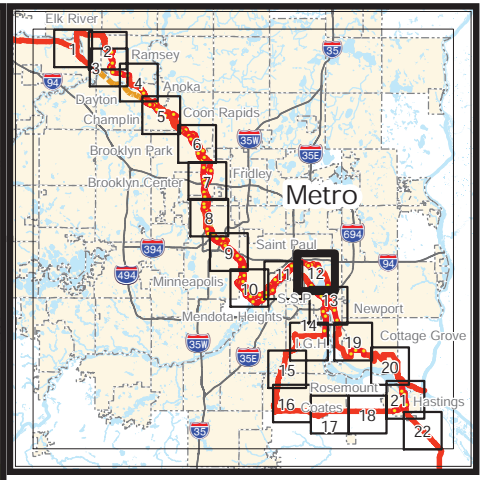
Basemap Features:

- Major Road with 4'+ Bikeable Shoulders
- Railroad
- Interstate Highways
- Other Roads
- US Highways
- State Highways
- County Roads
- Cities
- Open Water

March 2015

MRT Info on MNDOT Website:
http://www.dot.state.mn.us/bike/mrt/index.html
Alternative Format:
http://www.dot.state.mn.us/bike/ada.html
Disclaimer:
http://www.dot.state.mn.us/information/disclaimer.html

EXHIBIT 3D



St. Paul East

Metro Map Inset 12

Mississippi River Trail Bikeway
U.S. Bicycle Route (USBR) 45

Details on MRT Route:

- MRT Route on Road
- MRT Route on Existing Roads with Limitations (shoulder width, sightlines, surface)
- MRT Route on Existing Trails

Existing Recreation Facilities:

- Fishing Opportunities
- Water Access Site
- Existing Federal, State and Regional Bikeable Trails
- State and Regional Parks
- Mississippi National River and Recreation Area (MNRRA)
- Federal and State Forests
- National Wildlife Refuge

Basemap Features:

- Major Road with 4'+ Bikeable Shoulders
- Railroad
- Interstate Highways
- Other Roads
- US Highways
- State Highways
- County Roads
- Cities
- Open Water

March 2015

MRT Info on MNDOT Website:
http://www.dot.state.mn.us/bike/mrt/index.html
Alternative Format:
http://www.dot.state.mn.us/bike/ada.html
Disclaimer:
http://www.dot.state.mn.us/information/disclaimer.html

EXHIBIT 3D

SAINT PAUL

SAINT PAUL

SAINT PAUL

SAINT PAUL

LILYDALE

WEST ST. PAUL

MENDOTA HEIGHTS

SOUTH ST. PAUL

Mississippi River

Harriet Island

Saint Paul Downtown Airport (Holman Field)

Lilydale Regional Park

Pickerel Lake

WATER ST.

WABASHA ST.

ROBERT ST.

EVA ST.

STATE ST.

LAFAYETTE BLVD.

SMITH AVE.

PLATO BLVD.

AIRPORT RD.

EATON

UNION PACIFIC RAILROAD

CHANNEL RD.

LILYDALE ROAD

CONCORD ST.

Ramsey County

Dakota County

Ramsey County

Dakota County

BIG RIVERS REGIONAL TRAIL

TH 13

35E

52

94

FREEWAY

4B

4C

4D

4E

4F

4G

4H

TRAIL A

TRAIL B

TRAIL C

TRAIL D

TRAIL E

220

230

240

250

260

270

280

290

300

310

320

330

340

350

360

370

410

420

430

440

510

520

530

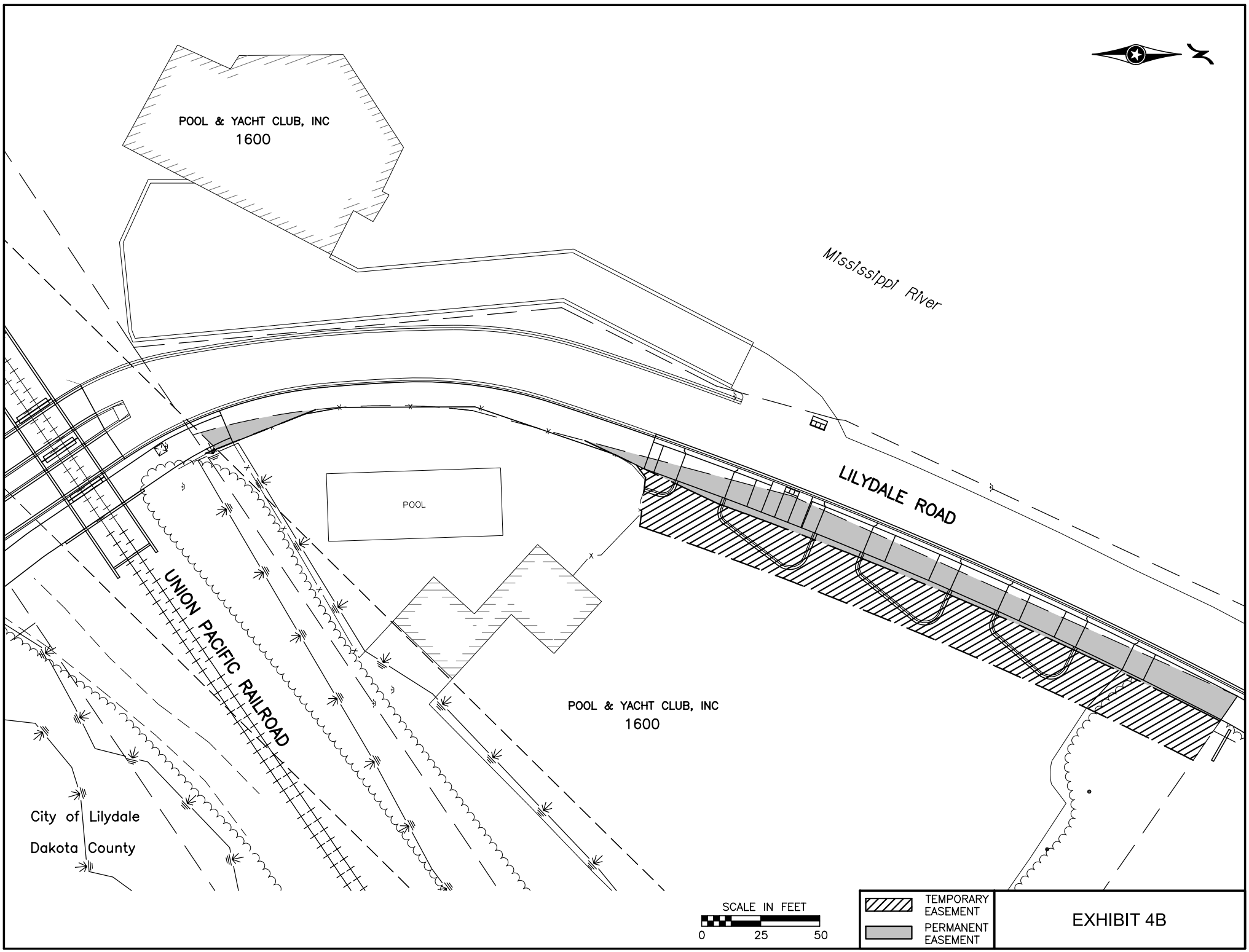
540

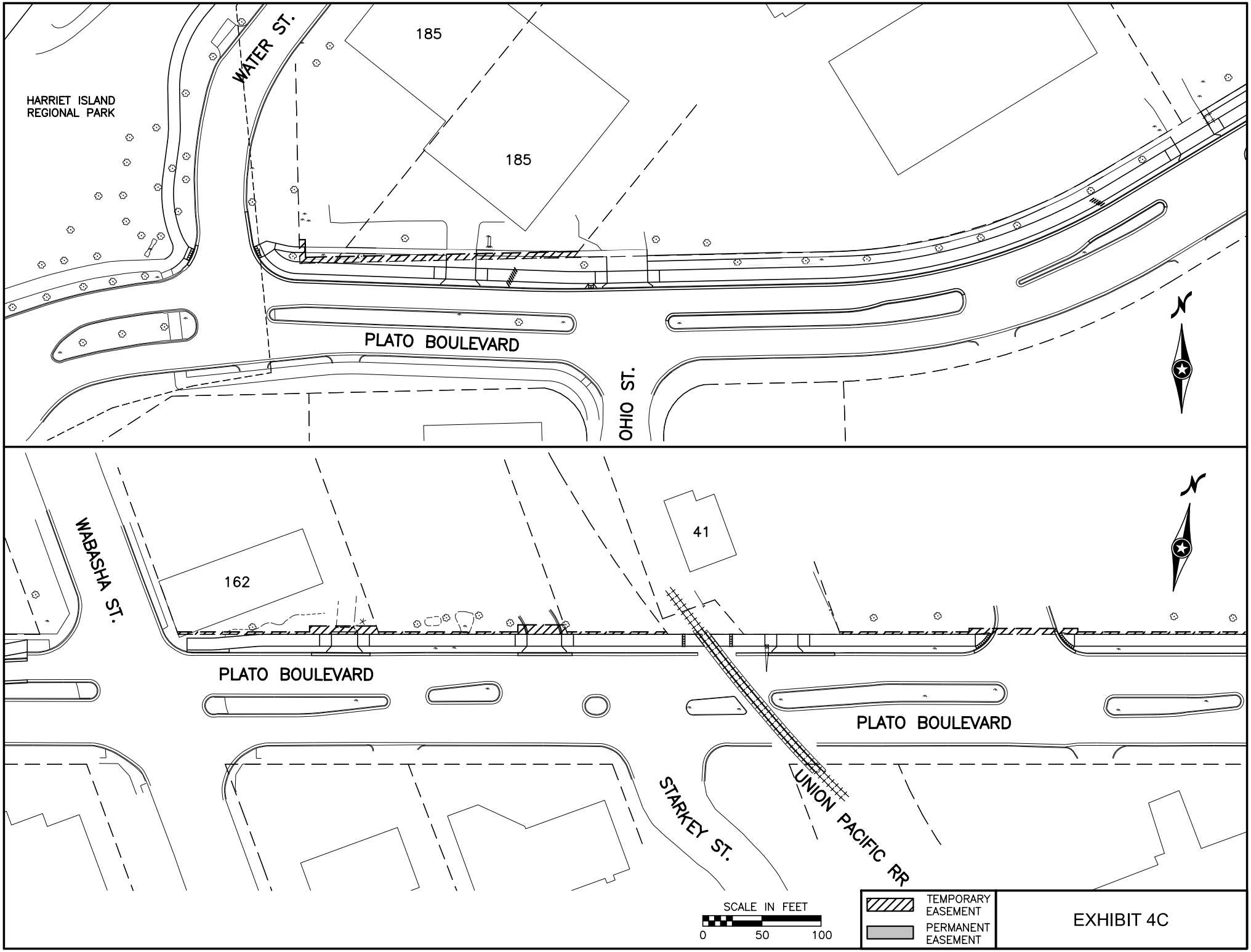
Kaposia Landing

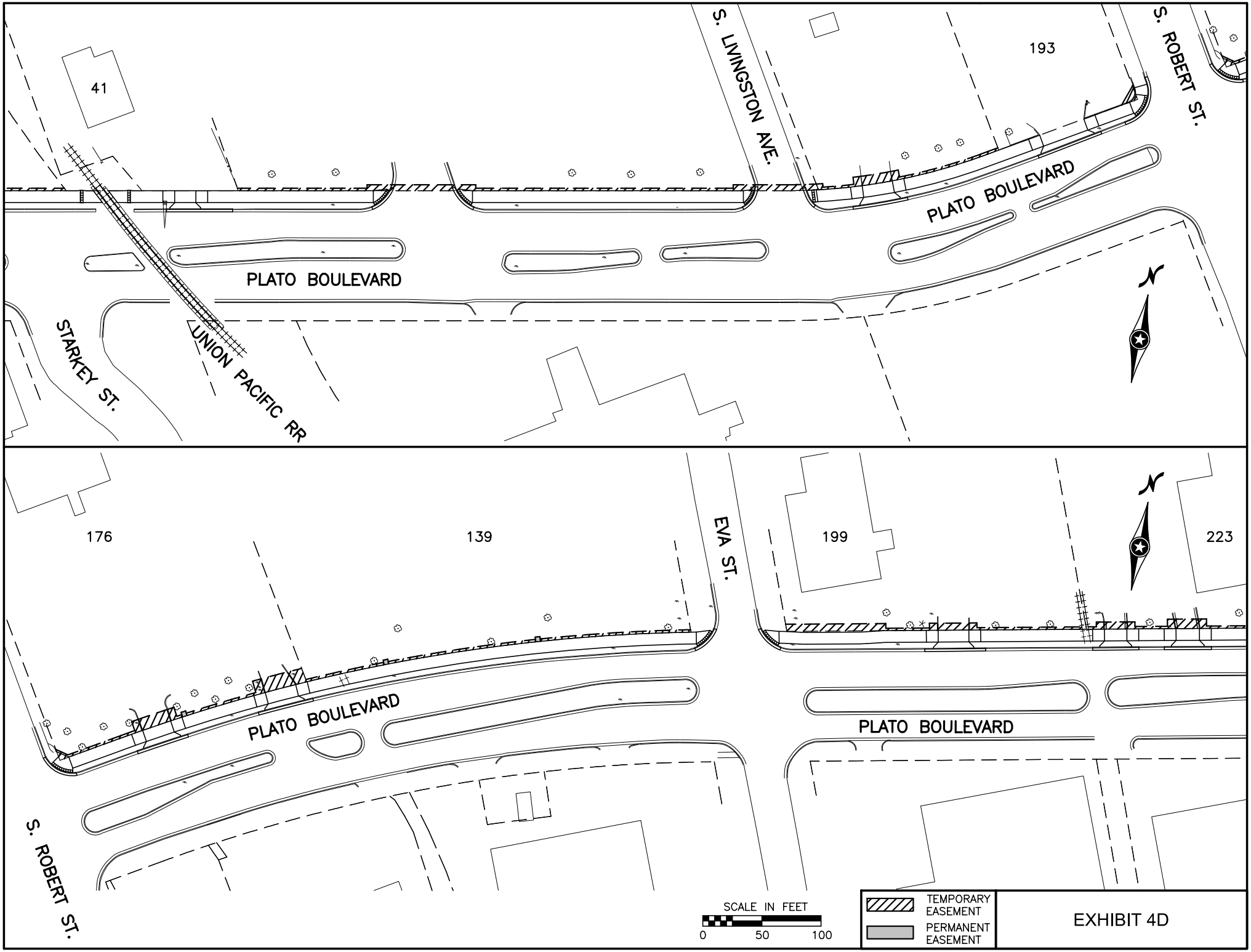
SCALE IN FEET

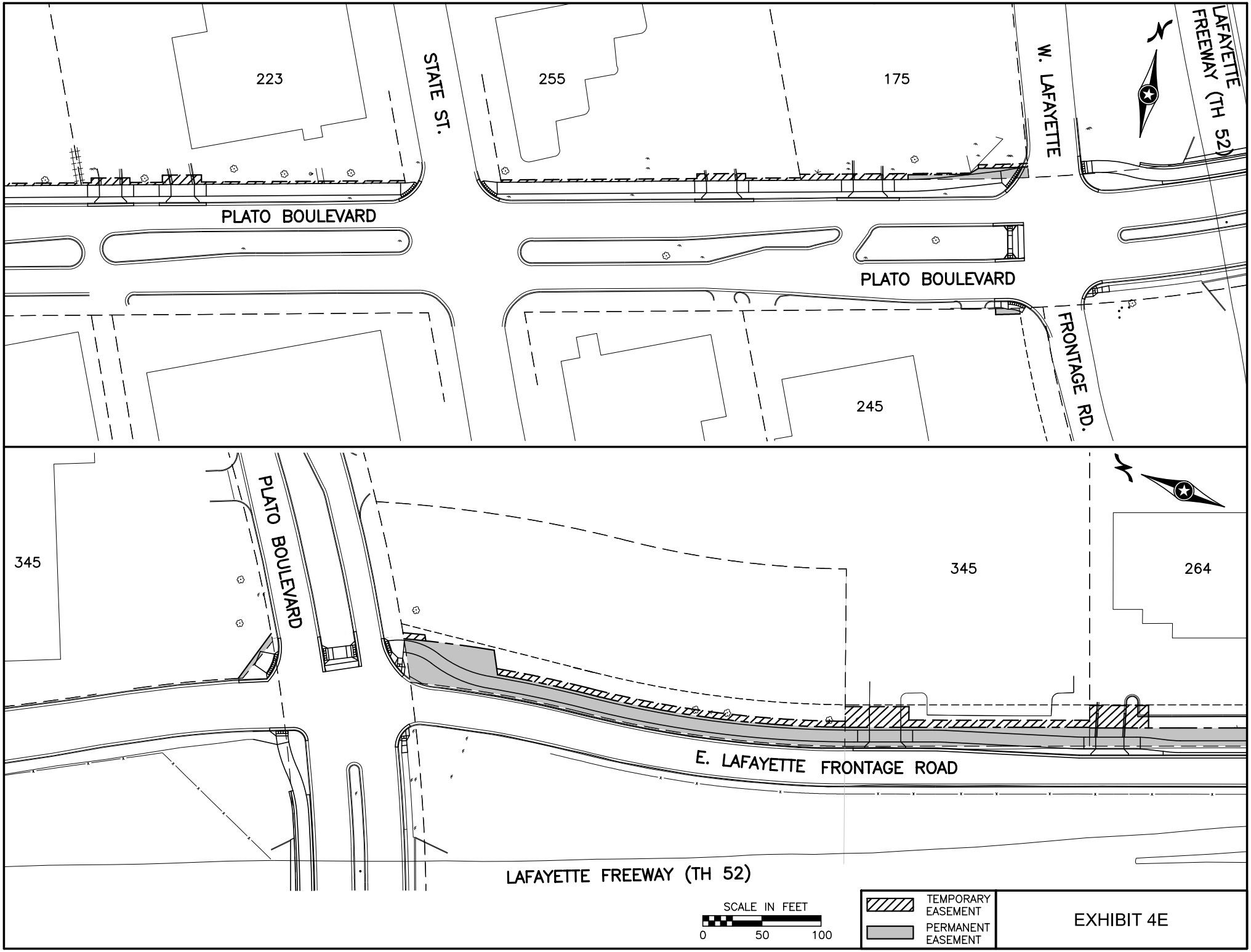
0 1000 2000

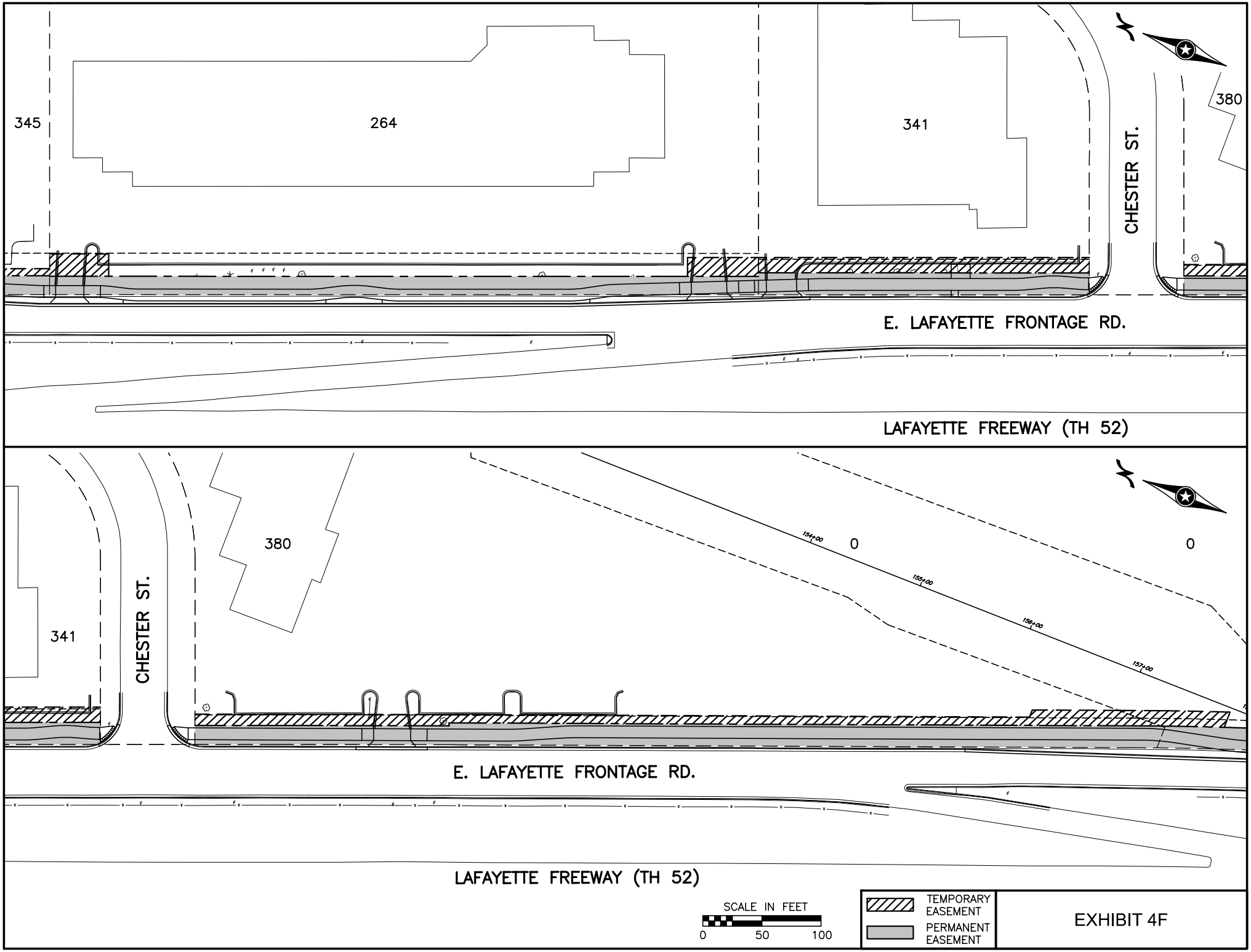
EXHIBIT 4A
RIGHT-OF-WAY ACQUISITIONS

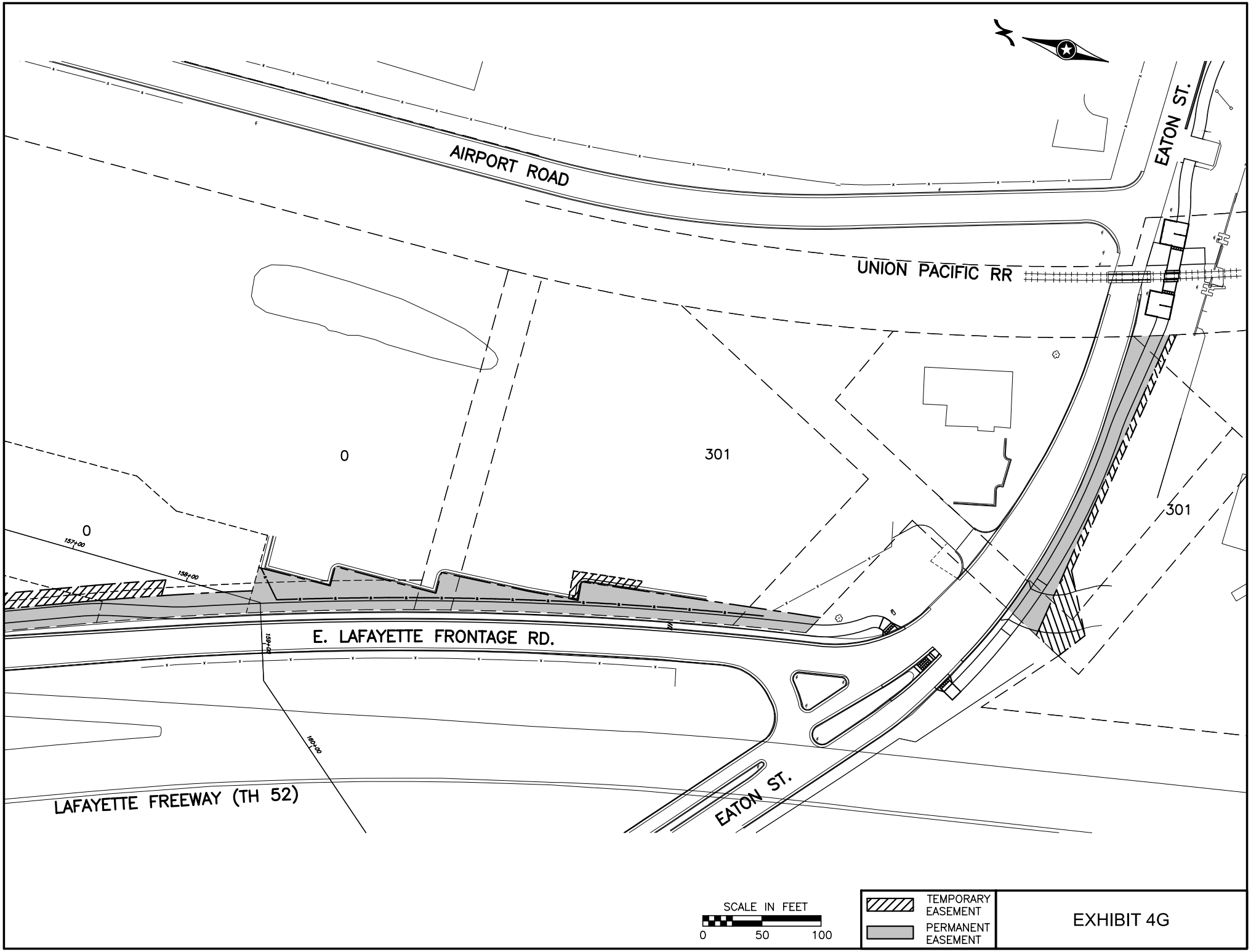

POOL & YACHT CLUB, INC
1600
Mississippi River
LILYDALE ROAD
POOL
UNION PACIFIC RAILROAD
POOL & YACHT CLUB, INC
1600
City of Lilydale
Dakota County
SCALE IN FEET
0
25
50
TEMPORARY EASEMENT
PERMANENT EASEMENT
EXHIBIT 4B

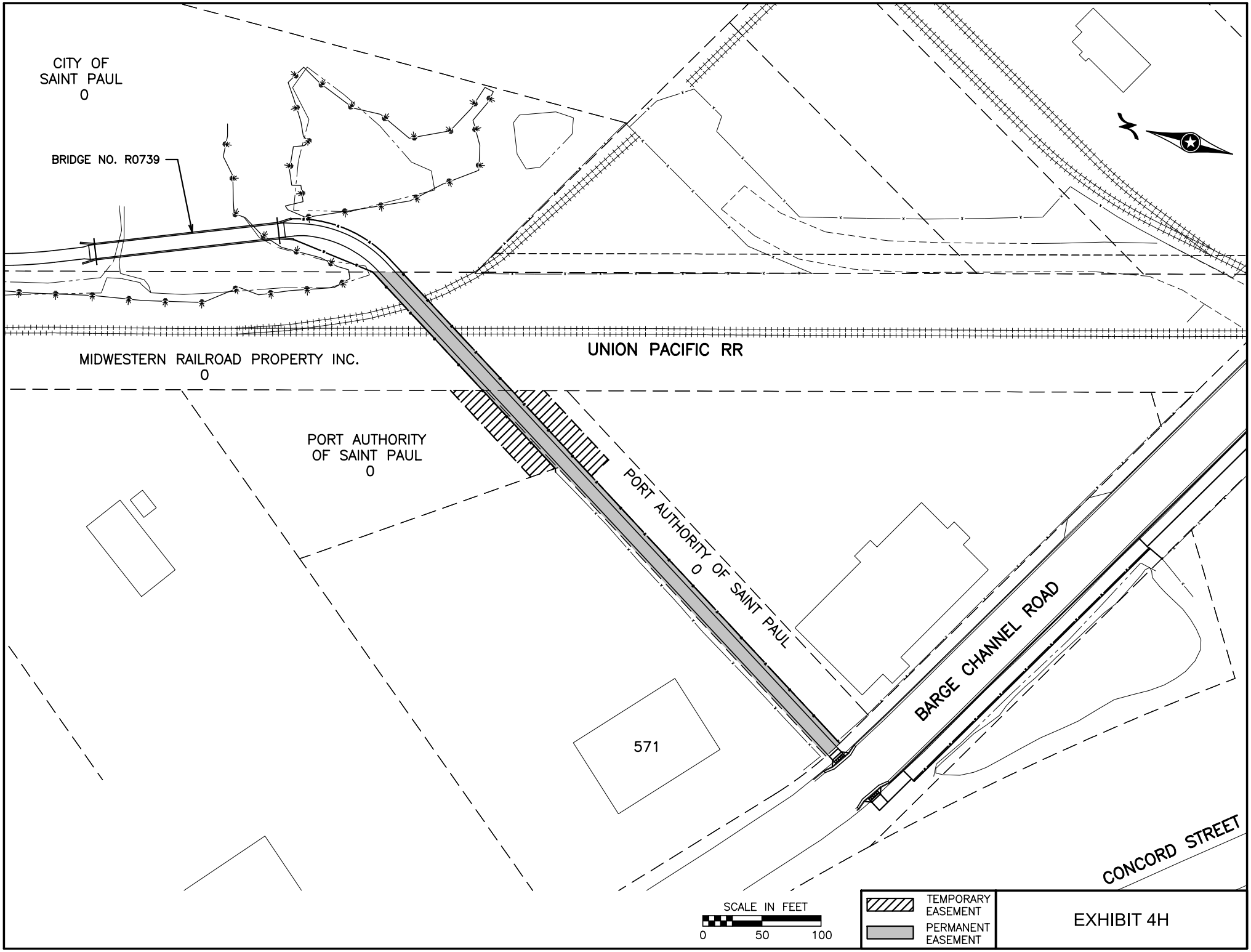

HARRIET ISLAND
REGIONAL PARK
WATER ST.
185
185
PLATO BOULEVARD
OHIO ST.
N
WABASHA ST.
162
41
PLATO BOULEVARD
PLATO BOULEVARD
STARKEY ST.
UNION PACIFIC RR
N
SCALE IN FEET
0
50
100
TEMPORARY EASEMENT
PERMANENT EASEMENT
EXHIBIT 4C

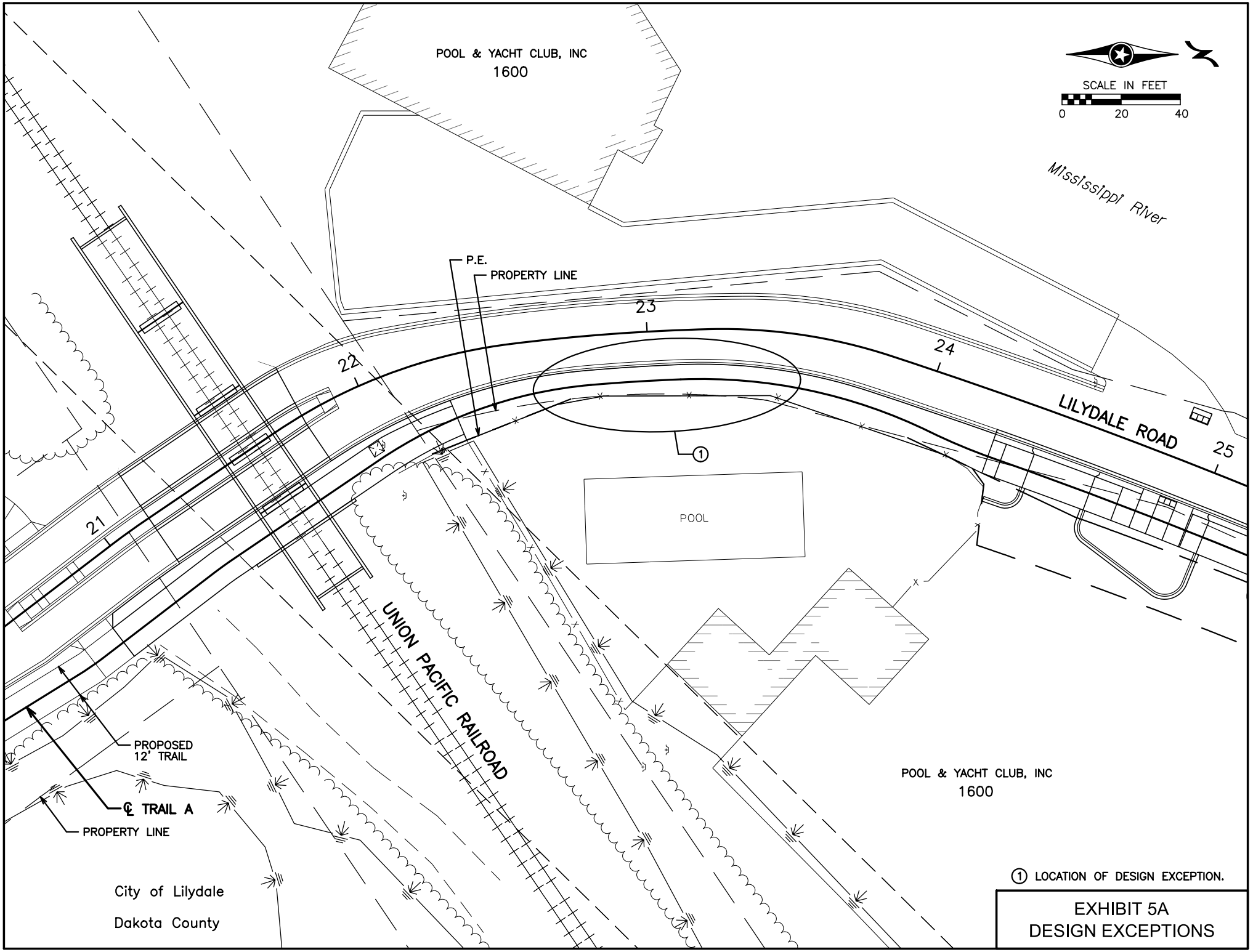

41
S. LIVINGSTON AVE.
193
S. ROBERT ST.
PLATO BOULEVARD
PLATO BOULEVARD
STARKEY ST.
UNION PACIFIC RR
176
139
EVA ST.
199
223
PLATO BOULEVARD
PLATO BOULEVARD
S. ROBERT ST.
SCALE IN FEET
0
50
100
TEMPORARY EASEMENT
PERMANENT EASEMENT
EXHIBIT 4D

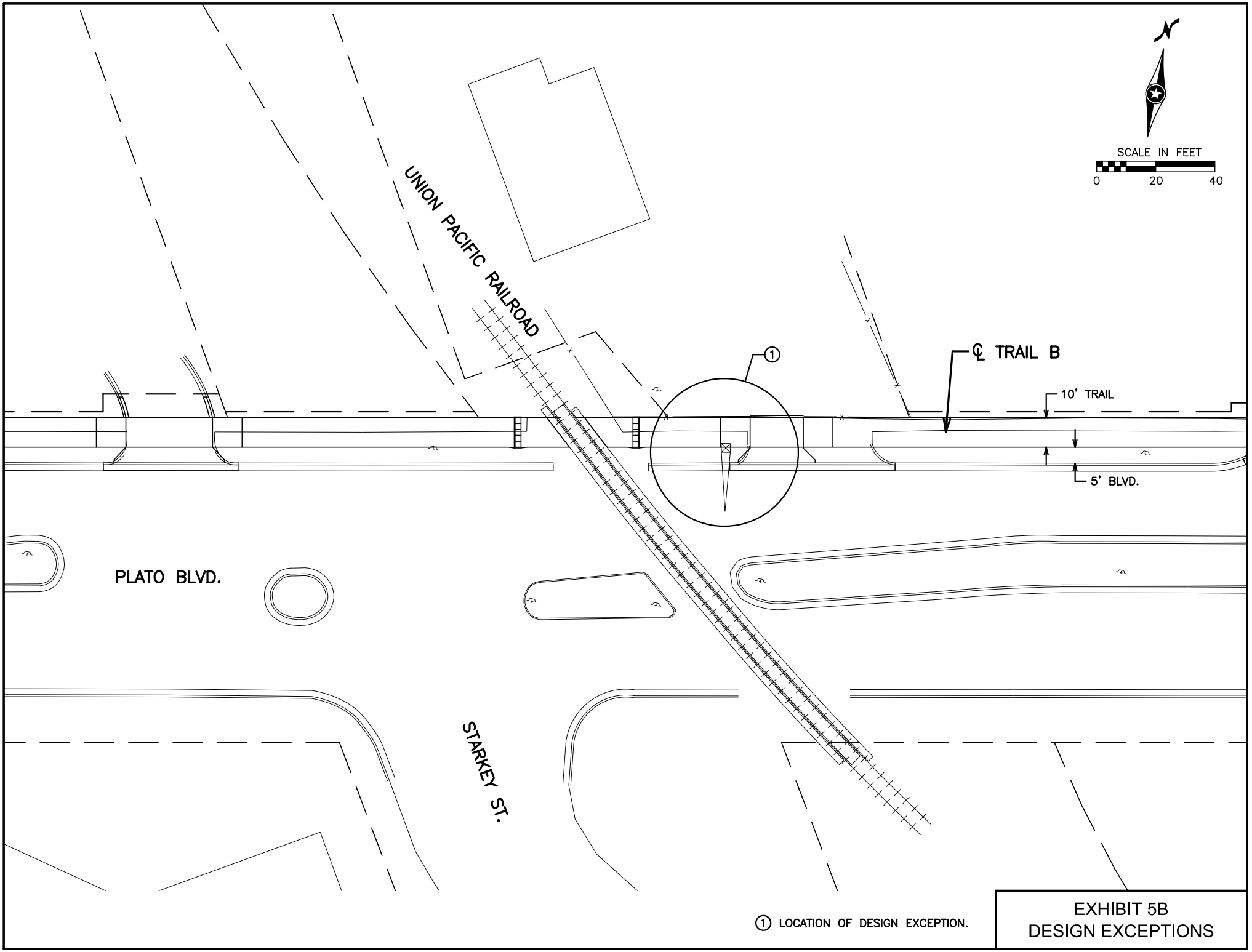

223
STATE ST.
255
175
W. LAFAYETTE
LAFAYETTE FREEWAY (TH 52)
PLATO BOULEVARD
PLATO BOULEVARD
FRONTAGE RD.
245
345
PLATO BOULEVARD
345
264
E. LAFAYETTE FRONTAGE ROAD
LAFAYETTE FREEWAY (TH 52)
SCALE IN FEET
0
50
100
TEMPORARY EASEMENT
PERMANENT EASEMENT
EXHIBIT 4E

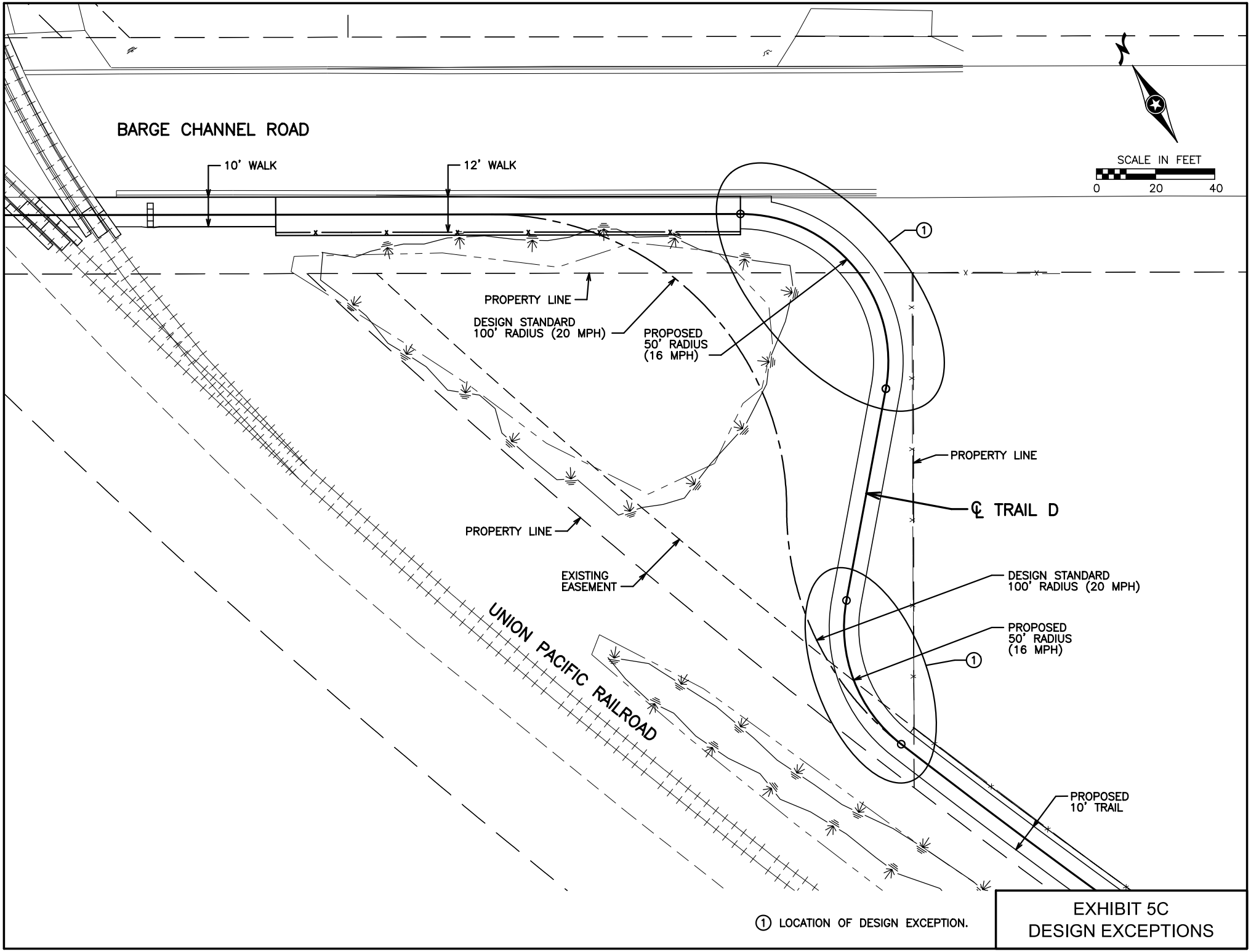

345
264
341
380
CHESTER ST.
E. LAFAYETTE FRONTAGE RD.
LAFAYETTE FREEWAY (TH 52)
341
CHESTER ST.
380
154+00
0
155+00
156+00
157+00
0
E. LAFAYETTE FRONTAGE RD.
LAFAYETTE FREEWAY (TH 52)
SCALE IN FEET
0
50
100
TEMPORARY EASEMENT
PERMANENT EASEMENT
EXHIBIT 4F

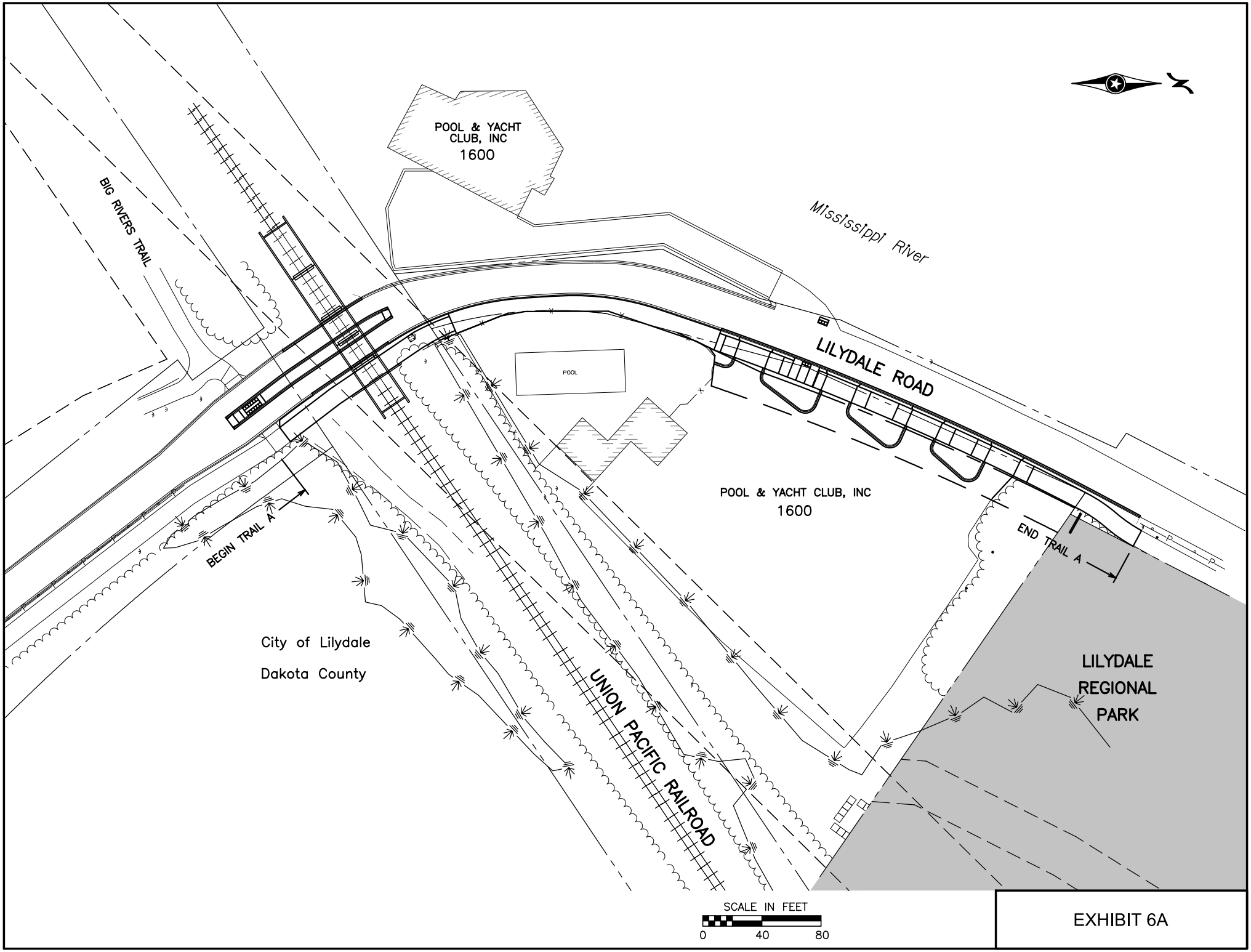

AIRPORT ROAD
EATON ST.
UNION PACIFIC RR
0
301
0
301
157+00
158+00
159+00
160+00
E. LAFAYETTE FRONTAGE RD.
LAFAYETTE FREEWAY (TH 52)
EATON ST.
SCALE IN FEET
0
50
100
TEMPORARY EASEMENT
PERMANENT EASEMENT
EXHIBIT 4G

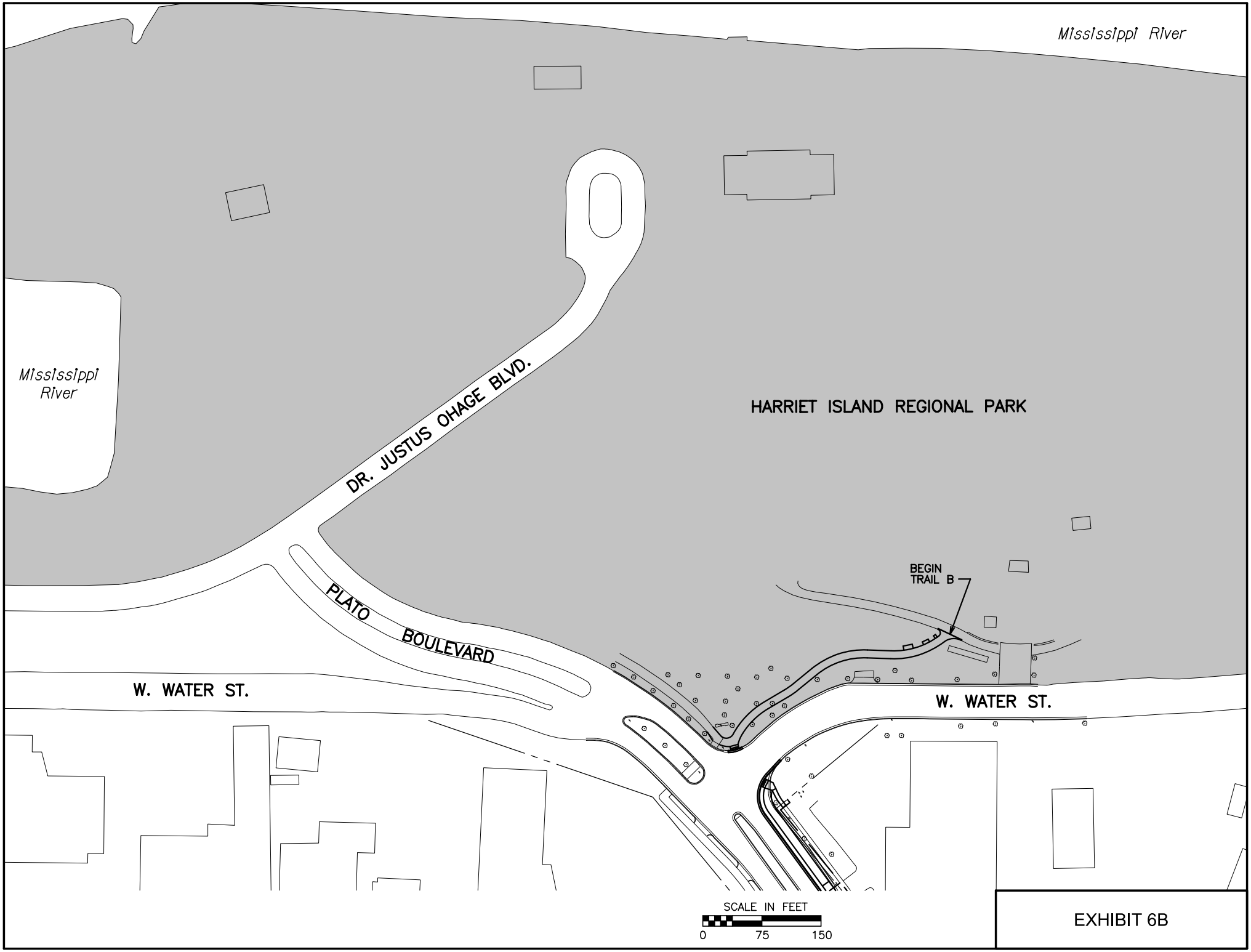

CITY OF
SAINT PAUL
0
BRIDGE NO. R0739
UNION PACIFIC RR
MIDWESTERN RAILROAD PROPERTY INC.
0
PORT AUTHORITY
OF SAINT PAUL
0
PORT AUTHORITY OF SAINT PAUL
0
BARGE CHANNEL ROAD
571
CONCORD STREET
SCALE IN FEET
0
50
100
TEMPORARY EASEMENT
PERMANENT EASEMENT
EXHIBIT 4H


POOL & YACHT CLUB, INC
1600
SCALE IN FEET
0
20
40
Mississippi River
P.E.
PROPERTY LINE
23
22
24
LILYDALE ROAD
25
21
1
POOL
UNION PACIFIC RAILROAD
PROPOSED
12' TRAIL
℄ TRAIL A
PROPERTY LINE
POOL & YACHT CLUB, INC
1600
City of Lilydale
Dakota County
1 LOCATION OF DESIGN EXCEPTION.
EXHIBIT 5A
DESIGN EXCEPTIONS


N
SCALE IN FEET
0
20
40
UNION PACIFIC RAILROAD
℄ TRAIL B
10' TRAIL
5' BLVD.
1
PLATO BLVD.
STARKEY ST.
1 LOCATION OF DESIGN EXCEPTION.
EXHIBIT 5B
DESIGN EXCEPTIONS


BARGE CHANNEL ROAD
10' WALK
12' WALK
SCALE IN FEET
0
20
40
1
PROPERTY LINE
DESIGN STANDARD
100' RADIUS (20 MPH)
PROPOSED
50' RADIUS
(16 MPH)
PROPERTY LINE
℄ TRAIL D
PROPERTY LINE
EXISTING
EASEMENT
UNION PACIFIC RAILROAD
DESIGN STANDARD
100' RADIUS (20 MPH)
PROPOSED
50' RADIUS
(16 MPH)
1
PROPOSED
10' TRAIL
1 LOCATION OF DESIGN EXCEPTION.
EXHIBIT 5C
DESIGN EXCEPTIONS


POOL & YACHT CLUB, INC
1600
BIG RIVERS TRAIL
Mississippi River
LILYDALE ROAD
POOL
POOL & YACHT CLUB, INC
1600
BEGIN TRAIL A
END TRAIL A
City of Lilydale
Dakota County
UNION PACIFIC RAILROAD
LILYDALE
REGIONAL
PARK
SCALE IN FEET
0
40
80
EXHIBIT 6A


Mississippi River
Mississippi River
DR. JUSTUS OHAGE BLVD.
HARRIET ISLAND REGIONAL PARK
BEGIN TRAIL B
PLATO BOULEVARD
W. WATER ST.
W. WATER ST.
SCALE IN FEET
0
75
150
EXHIBIT 6B

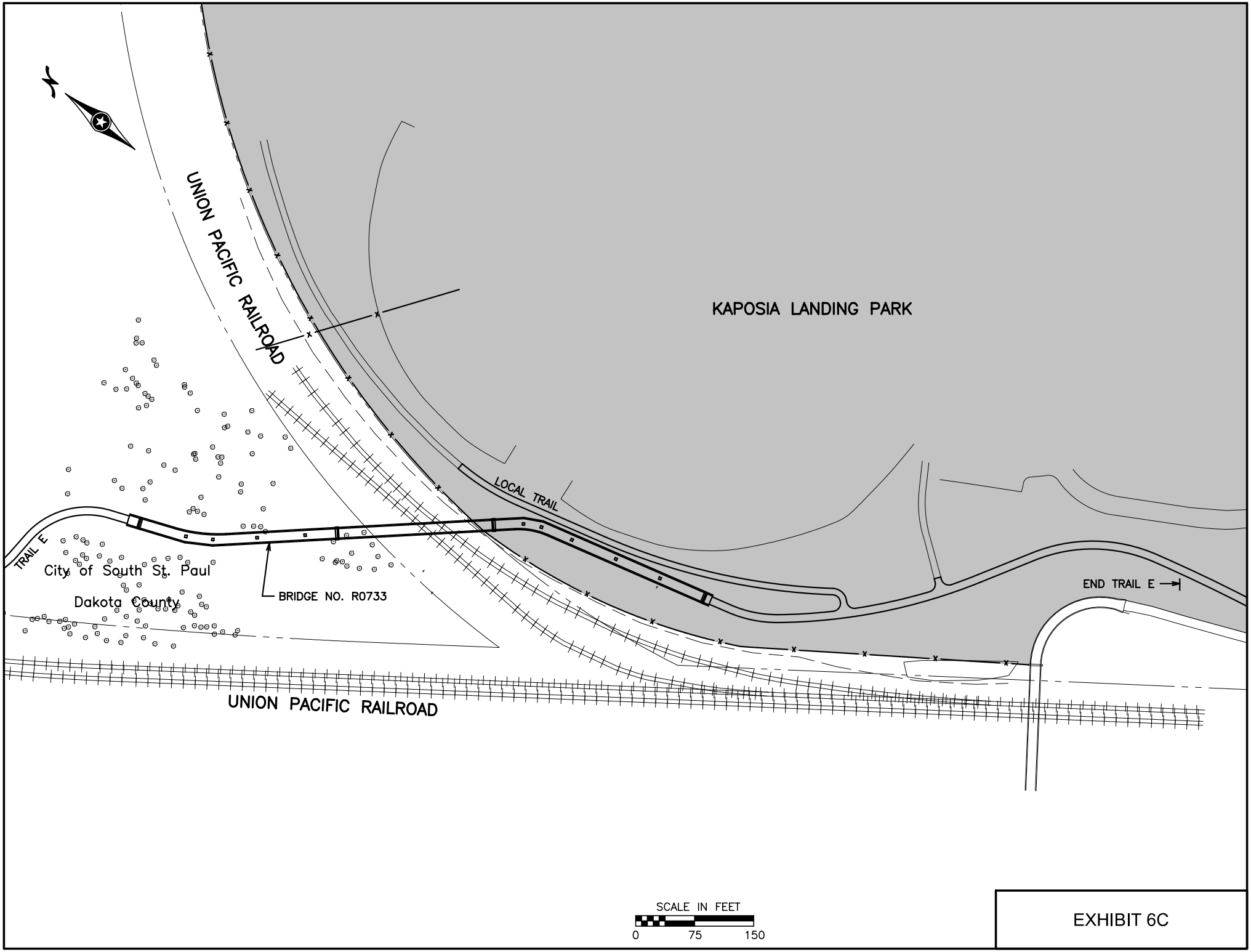

UNION PACIFIC RAILROAD
KAPOSIA LANDING PARK
LOCAL TRAIL
TRAIL E
City of South St. Paul
Dakota County
BRIDGE NO. R0733
END TRAIL E
UNION PACIFIC RAILROAD
SCALE IN FEET
0
75
150

EXHIBIT 6C

Minnesota Department of Natural Resources

Division of Ecological and Water Resources, Box 25

500 Lafayette Road

St. Paul, Minnesota 55155-4025

Phone: (651) 259-5091 E-mail: samantha.bump@state.mn.us

April 28, 2016 **Correspondence # ERDB 20160385**

Mr. Mark Daubenberger
TKDA, Inc.
444 Cedar Street, Suite 1500
St. Paul, MN 55101

RE: Natural Heritage Review of the proposed Harriet Island to South St. Paul Regional Trail,

County	Township (N)	Range (W)	Section(s)
Dakota	28	22	16
Dakota	28	23	14,23
Ramsey	28	22	5, 6, 8, 9

Dear Mr. Daubenberger,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, rare features have been documented within the search area (for details, please visit the Rare Species Guide at http://www.dnr.state.mn.us/rsg/index.html for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following **rare features *may* be adversely affected** by the proposed project:

State-listed Species

- Blanding's turtles (*Emydoidea blandingii)*, a state-listed threatened species, have been reported in the vicinity of the proposed project. Blanding's turtles use upland areas up to and over a mile distant from wetlands, as well as wetlands. Uplands are used for nesting, basking, periods of dormancy, and traveling between wetlands. Because of the tendency to travel long distances over land, Blanding's turtles regularly travel across roads and are therefore susceptible to collisions with vehicles. Any added mortality can be detrimental to populations of Blanding's turtles, as these turtles have a low reproduction rate that depends upon a high survival rate to maintain population levels. Other factors believed to contribute to the decline of this species include wetland drainage and degradation, and the development of upland habitat.

  For your information, I have attached a Blanding's turtle fact sheet that describes the habitat use and life history of this species. The fact sheet also provides two lists of recommendations for avoiding and minimizing impacts to this rare turtle. **Please refer to the first list of recommendations for your project.** In addition, if erosion control mesh will be used, the DNR recommends that the mesh be limited to wildlife-friendly materials (see enclosed fact sheet). If greater protection for turtles is desired, the second list of additional recommendations can also be implemented.

The attached flyer should be given to all contractors working in the area. If Blanding's turtles are encountered on site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they should be moved by hand out of harm's way, otherwise they should be left undisturbed.

- The Bell's vireo, (*Vireo bellii*), a state listed bird species of special concern, has been documented in the vicinity of the project. In Minnesota, Bell's vireo prefers shrub thickets within or bordering open habitats such as grasslands or wetlands. This bird suspends its nests from forks of low branches of small trees or shrubs in riparian areas. If feasible, tree & shrub removal should be avoided from May 15th through August 15th to avoid disturbance of nesting birds.

- Several state-listed mussels, fish and amphibians have been documented in the Mississippi River in the vicinity of the proposed project. Given that nearby storm sewer inlets discharge to the Mississippi River and these species are particularly vulnerable to deterioration in water quality, especially increased siltation, it is important that stringent erosion prevention and sediment control practices be incorporated into any stormwater management plan and maintained throughout the project.

- Peregrine falcons (*Falco peregrinus*), a state-listed species of special concern, have been documented during the breeding season (April through July) in the vicinity of the project, and it is possible that they may nest in the area. Bald eagles (*Haliaeetus leucocephalus*) may also nest in the area. Bald eagles and peregrine falcons are federally protected under the Migratory Bird Treaty Act and Bald eagles under the Bald and Golden Eagle Protection Act. Both acts prohibit killing, selling, or otherwise harming these birds, their nests, or eggs. If there will be any tree removal associated with the proposed project, the trees should be inspected for nests prior to being cut down. The USFWS does issue permits for unintentional disturbance and for the taking of a tree. Please visit the USFWS website at http://www.fws.gov/midwest/eagle/ for more information regarding bald eagle conservation measures, management guidelines, and permitting.

- The northern long-eared bat (*Myotis septentrionalis*), federally listed as threatened and state-listed as special concern, can be found throughout Minnesota. During the winter this species hibernates in caves and mines, and during the active season (approximately April-October) it roosts underneath bark, in cavities, or in crevices of both live and dead trees. Pup rearing is during June and July. Activities that may impact this species include, but are not limited to, wind farm operation, any disturbance to hibernacula, and destruction/degradation of habitat (including tree removal).

  The U.S. Fish and Wildlife Service (USFWS) has published a final 4(d) rule that identifies prohibited take. To determine whether you need to contact the USFWS, please refer to the USFWS Key to the Northern Long-Eared Bat 4(d) Rule (see links below). Please note that the NHIS does not contain any known occurrences of northern long-eared bat roosts or hibernacula within a half-mile radius of the proposed project.

Environmental Review and Permitting

- Please include a copy of this letter in any state or local license or permit application. **Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.**

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. **If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.**

The enclosed results include an Index Report of records in the Rare Features Database, the main database of the NHIS. To control the release of specific location data, the report is copyrighted and only provides rare features locations to the nearest section. The Index Report may be reprinted, unaltered, in any environmental review document (e.g., EAW or EIS), municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the Index Report for any other purpose, please contact me to request written permission.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. To determine whether there are other natural resource concerns associated with the proposed project, please contact your DNR Regional Environmental Assessment Ecologist (contact information available at http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html). Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,

Samantha Bump

Samantha Bump
Natural Heritage Review Specialist

enc. Rare Features Database: Index Report
Blanding's Turtle Fact Sheet & Flyer
Wildlife Friendly Erosion Control

Links: USFWS Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities
http://www.fws.gov/midwest/endangered/mammals/nleb/KeyFinal4dNLEB.html
USFWS Key to the Northern Long-Eared Bat 4(d) Rule for Federal Actions
http://www.fws.gov/midwest/endangered/mammals/nleb/KeyFinal4dNLEBFedProjects.html
USFWS Northern Long-eared Bat Website
http://www.fws.gov/midwest/endangered/mammals/nleb/index.html
USFWS Northern Long-eared Bat Fact Sheet
http://www.fws.gov/midwest/endangered/mammals/nleb/nlebFactSheet.html

Cc: Becky Horton
Leslie Parris
Jennie Skancke
Jen Sorensen

Environmental Review Fact Sheet Series

Endangered, Threatened, and Special Concern Species of Minnesota

Blanding's Turtle

(*Emydoidea blandingii*)

Minnesota Status:	Threatened	State Rank[1]:	S2
Federal Status:	none	Global Rank[1]:	G4

HABITAT USE

Blanding's turtles need both wetland and upland habitats to complete their life cycle. The types of wetlands used include ponds, marshes, shrub swamps, bogs, and ditches and streams with slow-moving water. In Minnesota, Blanding's turtles are primarily marsh and pond inhabitants. Calm, shallow water bodies (Type 1-3 wetlands) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies) are preferred, and extensive marshes bordering rivers provide excellent habitat. Small temporary wetlands (those that dry up in the late summer or fall) are frequently used in spring and summer -- these fishless pools are amphibian and invertebrate breeding habitat, which provides an important food source for Blanding's turtles. Also, the warmer water of these shallower areas probably aids in the development of eggs within the female turtle. Nesting occurs in open (grassy or brushy) sandy uplands, often some distance from water bodies. Frequently, nesting occurs in traditional nesting grounds on undeveloped land. Blanding's turtles have also been known to nest successfully on residential property (especially in low density housing situations), and to utilize disturbed areas such as farm fields, gardens, under power lines, and road shoulders (especially of dirt roads). Although Blanding's turtles may travel through woodlots during their seasonal movements, shady areas (including forests and lawns with shade trees) are not used for nesting. Wetlands with deeper water are needed in times of drought, and during the winter. Blanding's turtles overwinter in the muddy bottoms of deeper marshes and ponds, or other water bodies where they are protected from freezing.

LIFE HISTORY

Individuals emerge from overwintering and begin basking in late March or early April on warm, sunny days. The increase in body temperature which occurs during basking is necessary for egg development within the female turtle. Nesting in Minnesota typically occurs during June, and females are most active in late afternoon and at dusk. Nesting can occur as much as a mile from wetlands. The nest is dug by the female in an open sandy area and 6-15 eggs are laid. The female turtle returns to the marsh within 24 hours of laying eggs. After a development period of approximately two months, hatchlings leave the nest from mid-August through early-October. Nesting females and hatchlings are often at risk of being killed while crossing roads between wetlands and nesting areas. In addition to movements associated with nesting, all ages and both sexes move between wetlands from April through November. These movements peak in June and July and again in September and October as turtles move to and from overwintering sites. In late autumn (typically November), Blanding's turtles bury themselves in the substrate (the mud at the bottom) of deeper wetlands to overwinter.

IMPACTS / THREATS / CAUSES OF DECLINE

- loss of wetland habitat through drainage or flooding (converting wetlands into ponds or lakes)
- loss of upland habitat through development or conversion to agriculture
- human disturbance, including collection for the pet trade* and road kills during seasonal movements
- increase in predator populations (skunks, raccoons, etc.) which prey on nests and young

*It is illegal to possess this threatened species.

RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS

These recommendations apply to typical construction projects and general land use within Blanding's turtle habitat, and are provided to help local governments, developers, contractors, and homeowners minimize or avoid detrimental impacts to Blanding's turtle populations. **List 1** describes minimum measures which we recommend to prevent harm to Blanding's turtles during construction or other work within Blanding's turtle habitat. **List 2** contains recommendations which offer even greater protection for Blanding's turtles populations; this list should be used *in addition to the first list* in areas which are known to be of state-wide importance to Blanding's turtles (contact the DNR's Natural Heritage and Nongame Research Program if you wish to determine if your project or home is in one of these areas), or in any other area where greater protection for Blanding's turtles is desired.

List 1. Recommendations for all areas inhabited by Blanding's turtles.	**List 2. *Additional* recommendations for areas known to be of state-wide importance to Blanding's turtles.**
GENERAL	
A flyer with an illustration of a Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.	Turtle crossing signs can be installed adjacent to road-crossing areas used by Blanding's turtles to increase public awareness and reduce road kills.
Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed.	Workers in the area should be aware that Blanding's turtles nest in June, generally after 4pm, and should be advised to minimize disturbance if turtles are seen.
If a Blanding's turtle nests in your yard, do not disturb the nest.	If you would like to provide more protection for a Blanding's turtle nest on your property, see "Protecting Blanding's Turtle Nests" on page 3 of this fact sheet.
Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.	Construction in potential nesting areas should be limited to the period between September 15 and June 1 (this is the time when activity of adults and hatchlings in upland areas is at a minimum).
WETLANDS	
Small, vegetated temporary wetlands (Types 2 & 3) should not be dredged, deepened, filled, or converted to storm water retention basins (these wetlands provide important habitat during spring and summer).	Shallow portions of wetlands should not be disturbed during prime basking time (mid morning to mid- afternoon in May and June). A wide buffer should be left along the shore to minimize human activity near wetlands (basking Blanding's turtles are more easily disturbed than other turtle species).
Wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.	Wetlands should be protected from road, lawn, and other chemical run-off by a vegetated buffer strip at least 50' wide. This area should be left unmowed and in a natural condition.
ROADS	
Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).	Tunnels should be considered in areas with concentrations of turtle crossings (more than 10 turtles per year per 100 meters of road), and in areas of lower density if the level of road use would make a safe crossing impossible for turtles. Contact your DNR Regional Nongame Specialist for further information on wildlife tunnels.
Roads should be ditched, not curbed or below grade. If curbs must be used, 4 inch high curbs at a 3:1 slope are preferred (Blanding's turtles have great difficulty climbing traditional curbs; curbs and below grade roads trap turtles on the road and can cause road kills).	Roads should be ditched, not curbed or below grade.

ROADS cont.	
Culverts between wetland areas, or between wetland areas and nesting areas, should be 36 inches or greater in diameter, and elliptical or flat-bottomed.	Road placement should avoid separating wetlands from adjacent upland nesting sites, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details).
Wetland crossings should be bridged, or include raised roadways with culverts which are 36 in or greater in diameter and flat-bottomed or elliptical (raised roadways discourage turtles from leaving the wetland to bask on roads).	Road placement should avoid bisecting wetlands, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details). This is especially important for roads with more than 2 lanes.
Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.	Roads crossing streams should be bridged.
UTILITIES	
Utility access and maintenance roads should be kept to a minimum (this reduces road-kill potential).	
Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.	
LANDSCAPING AND VEGETATION MANAGEMENT	
Terrain should be left with as much natural contour as possible.	As much natural landscape as possible should be preserved (installation of sod or wood chips, paving, and planting of trees within nesting habitat can make that habitat unusable to nesting Blanding's turtles).
Graded areas should be revegetated with native grasses and forbs (some non-natives form dense patches through which it is difficult for turtles to travel).	Open space should include some areas at higher elevations for nesting. These areas should be retained in native vegetation, and should be connected to wetlands by a wide corridor of native vegetation.
Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).	Ditches and utility access roads should not be mowed or managed through use of chemicals. If vegetation management is required, it should be done mechanically, as infrequently as possible, and fall through spring (mowing can kill turtles present during mowing, and makes it easier for predators to locate turtles crossing roads).

Protecting Blanding's Turtle Nests: Most predation on turtle nests occurs within 48 hours after the eggs are laid. After this time, the scent is gone from the nest and it is more difficult for predators to locate the nest. Nests more than a week old probably do not need additional protection, unless they are in a particularly vulnerable spot, such as a yard where pets may disturb the nest. Turtle nests can be protected from predators and other disturbance by covering them with a piece of wire fencing (such as chicken wire), secured to the ground with stakes or rocks. The piece of fencing should measure at least 2 ft. x 2 ft., and should be of medium sized mesh (openings should be about 2 in. x 2 in.). It is ***very important*** that the fencing be **removed before August 1st** so the young turtles can escape from the nest when they hatch!

REFERENCES

[1]Association for Biodiversity Information. "Heritage Status: Global, National, and Subnational Conservation Status Ranks." NatureServe. Version 1.3 (9 April 2001). http://www.natureserve.org/ranking.htm (15 April 2001).

Coffin, B., and L. Pfannmuller. 1988. Minnesota's Endangered Flora and Fauna. University of Minnesota Press, Minneapolis, 473 pp.

REFERENCES (cont.)

Moriarty, J. J., and M. Linck. 1994. Suggested guidelines for projects occurring in Blanding's turtle habitat. Unpublished report to the Minnesota DNR. 8 pp.

Oldfield, B., and J. J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, 237 pp.

Sajwaj, T. D., and J. W. Lang. 2000. Thermal ecology of Blanding's turtle in central Minnesota. Chelonian Conservation and Biology 3(4):626-636.

CAUTION

BLANDING'S TURTLES

MAY BE ENCOUNTERED IN THIS AREA

The unique and rare Blanding's turtle has been found in this area. Blanding's turtles are state-listed as Threatened and are protected under Minnesota Statute 84.095, Protection of Threatened and Endangered Species. Please be careful of turtles on roads and in construction sites. For additional information on turtles, or to report a Blanding's turtle sighting, contact the DNR Nongame Specialist nearest you: Bemidji (218-308-2641); Grand Rapids (218-327-4518); New Ulm (507-359-6033); Rochester (507-206-2820); or St. Paul (651-259-5772).

DESCRIPTION: The Blanding's turtle is a medium to large turtle (5 to 10 inches) with a black or dark blue, dome-shaped shell with muted yellow spots and bars. The bottom of the shell is hinged across the front third, enabling the turtle to pull the front edge of the lower shell firmly against the top shell to provide additional protection when threatened. The head, legs, and tail are dark brown or blue-gray with small dots of light brown or yellow. A distinctive field mark is the bright yellow chin and neck.

BLANDING'S TURTLES DO NOT MAKE GOOD PETS
IT IS ILLEGAL TO KEEP THIS THREATENED SPECIES IN CAPTIVITY

SUMMARY OF RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS TO BLANDING'S TURTLE POPULATIONS

(see Blanding's Turtle Fact Sheet for full recommendations)

- This flyer should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.
- Turtles that are in imminent danger should be moved, by hand, out of harm's way. Turtles that are not in imminent danger should be left undisturbed to continue their travel among wetlands and/or nest sites.
- If a Blanding's turtle nests in your yard, do not disturb the nest and do not allow pets near the nest.
- Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.
- Small, vegetated temporary wetlands should not be dredged, deepened, or filled.
- All wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.
- Roads should be kept to minimum standards on widths and lanes.
- Roads should be ditched, not curbed or below grade. If curbs must be used, 4" high curbs at a 3:1 slope are preferred.
- Culverts under roads crossing wetland areas, between wetland areas, or between wetland and nesting areas should be at least 36 in. diameter and flat-bottomed or elliptical.
- Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.
- Utility access and maintenance roads should be kept to a minimum.
- Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.
- Terrain should be left with as much natural contour as possible.
- Graded areas should be revegetated with native grasses and forbs.
- Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).

Compiled by the Minnesota Department of Natural Resources Division of Ecological and Water Resources, Updated August 2012
Endangered Species Review Coordinator, 500 Lafayette Rd., Box 25, St. Paul, MN 55155 / 651-259-5109

Wildlife Friendly Erosion Control

Wildlife entanglement in, and death from, plastic netting and other man-made plastic materials has been documented in birds (Johnson, 1990; Fuller-Perrine and Tobin, 1993), fish (Johnson, 1990), mammals (Derraik, 2002), and reptiles (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Yet the use of these materials continues in many cases, without consideration for wildlife impacts. Plastic netting is frequently used for erosion control during construction and landscape projects and can negatively impact terrestrial and aquatic wildlife populations as well as snag in maintenance machinery resulting in costly repairs and delays. However, wildlife friendly erosion control materials do exist, and are sold by several large erosion control material companies. Below are a few key considerations before starting a project.

Know Your Options

- Remember to consult with local natural resource authorities (DNR, USFWS, etc.) before starting a project. They can help you identify sensitive areas and rare species.
- When erosion control is necessary, select products with biodegradable netting (natural fiber, biodegradable polyesters, etc.).
- DO NOT use products that require UV-light to biodegrade (also called, "photodegradable"). These do not biodegrade properly when shaded by vegetation.
- Use netting with rectangular shaped mesh (not square mesh).
- Use netting with flexible (non-welded) mesh.

Woven 100% natural fiber erosion control materials being utilized along a central Minnesota stream. ©MN DNR, Nick Proulx

Fish trapped and killed by welded-plastic square erosion control mesh improperly placed along a small central Minnesota stream. Photo courtesy of Ben Lowe.

Know the Landscape

- It is especially important to use wildlife friendly erosion control around:
    - Areas with threatened or endangered species.
    - Wetlands, rivers, lakes, and other watercourses.
    - Habitat transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.).
    - Areas with threatened or endangered species.
- Use erosion mesh wisely, not all areas with disturbed ground necessitate its use. Do not use plastic mesh unless it is specifically required. Other erosion control options exist (open weave textile (OWT), rolled erosion control products (RECPs) with woven natural fiber netting).

Protect Wildlife

- Avoid photodegradable erosion control materials where possible.
- Use only biodegradable materials (typically made from natural fibers), preferably those that will biodegrade under a variety of conditions.
- Wildlife friendly erosion control material costs are often similar to conventional plastic netting.

Plains Gartersnake trapped and killed by welded-plastic square erosion control mesh placed along a newly installed cement culvert in southern Minnesota. ©MN DNR, Carol Hall

A small vole that was strangled and killed by plastic erosion control material with welded and square mesh. Photo taken in southern Minnesota and provided courtesy of Tom Jessen.

Literature Referenced

Barton, C. and K. Kinkead. 2005. Do erosion control and snakes mesh? Soil and Water Conservation Society 60:33A-35A.

Derraik, J.G.B. 2002. The pollution of the marine environment by plastic debris: a aeview. Marine Pollution Bulletin 44:842-852.

Fuller-Perrine, L.D., and M.E. Tobin. 1993. A method for applying and removing bird-exclusion netting in commercial vineyards. Wildlife Society Bulletin 21:47-51.

Johnson, S.W. 1990. Distribution, abundance, and source of entanglement debris and other plastics on Alaskan beaches, 1982-1988. Proceedings of the Second International Conference on Marine Debris 331-348.

Kapfer, J. M., and R. A. Paloski. 2011. On the threat to snakes of mesh deployed for erosion control and wildlife exclusion. Herpetological Conservation and Biology 6:1-9.

Minnesota Department of Transportation
395 John Ireland Boulevard
Saint Paul, MN 55155

May 23, 2016

Andrew Horton
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Twin Cities ES Field Office
4101 American Blvd East
Bloomington, MN 55425-1665

Notice of Determination – May affect, but will not cause prohibited incidental take – Northern Long-eared Bat (NLEB; *Myotis septentrionalis*)

No Effect Determination – Higgins eye pearlymussel (*Lampsilis higginsii*)
No Effect Determination – Prairie bush clover (*Lespedeza leptostachya*)
No Effect Determination – Snuffbox (*Epioblasma triquetra*)
No Effect Determination – Winged Mapleleaf (*Quadrula fragosa*)

S.P. 164-090-014, Regional Trail
Saint Paul, South St. Paul, and Lilydale – Dakota and Ramsey counties

Project Description

The project involves the construction of an off road paved multiuse trail. Refer to then attached Project Location Map and Project Layout for a depiction. Project proposes to remove up to approximately 135 individual trees (estimated 1.5 acres).

Location 1

Segment 1 – This segment of the trail will be constructed on the north side of Plato Boulevard. There are two alternatives being considered for the alignment. The first alternative replaces the existing sidewalk with the trail in the boulevard, which would require either removing the boulevard trees or acquiring permanent right of way. The second alternative involves removing a westbound Plato Boulevard traffic lane to accommodate the trail. Up to 45 individual trees to be removed.

Segment 2 – Between Plato Boulevard and Eaton Street, the proposed location of the trail is on the east side of Chester St and the east frontage road of Lafayette Road (TH 52). The street would likely be narrowed to allow for the trail to be placed within the existing right of way. A potential alternate is for the trail to be located on the east side of the frontage road from Plato Boulevard to Eaton Street. Up to 10 individual trees to be removed.

Segment 3 – Beginning at the Lafayette Road (TH 52) frontage road, the trail proceeds south on the south side of Eaton Street. The trail crosses the wetland that is located on the west side of the St Paul Downtown Airport (Holman Field) with a boardwalk, continuing to Barge Channel Road along the east side of the Union Pacific Railroad right of way. Up to 40 individual trees to be removed; many for safety purposes.

Segment 4 – The trail proceeds south from Barge Channel Road to Kaposia Landing Park along the east side of the Union Pacific Railroad right of way. Up to 35 individual trees to be removed; many for safety purposes.

Location 2

Segment 5 – Three alternatives are being considered for this segment, which is located in Lilydale. The intent of this segment is to connect the Lilydale Regional Park Trail and Big Rivers Regional Trail. The first alternative involves constructing a pedestrian underpass (tunnel) beneath the Union Pacific Railroad track. The second alternative places the trail on the east and south side of the Pool and Yacht Club facility. The profile grade of the trail for these two alternatives would be at or above the ground elevation. The third alternative places the trail along Lilydale Road. Up to five individual trees to be removed. (Note: at this time, it appears that Alternatives 1 and 2 have constraints that may render them not feasible)

Maps attached below.

Conservation Measures

- Tree clearing to avoid bat pupping season – No tree clearing in June and July.

Species List for the Project County

According to the official County Distribution of Minnesota Federally-Listed Threatened, Endangered, Proposed, and Candidate Species list (revised in April 2016), maintained by the Service, the project county is within the distribution range of the following:

Revised April 2016

County	Species	Status	Habitat
Dakota	Northern long-eared bat *Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
	Higgins eye pearlymussel *Lampsilis higginsii*	Endangered	Mississippi River
	Prairie bush clover *Lespedeza leptostachya*	Threatened	Native prairie on well-drained soils
Ramsey	Northern long-eared bat *Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
	Higgins eye pearlymussel *Lampsilis higginsii*	Endangered	Mississippi River
	Snuffbox *Epioblasma triquetra*	Endangered	Mississippi River
	Winged mapleleaf *Quadrula fragosa*	Endangered	St. Croix River

Information to Determine NLEB 4(d) Rule Compliance:	**YES**	**NO**
1. Does the project occur wholly outside of the WNS Zone?	☐	☒
2. Have you contacted the appropriate agency to determine if your project is near known hibernacula or maternity roost trees?	☒	☐
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	☐	☒
4. Could the project alter the entrance or interior environment of a known hibernaculum?	☐	☒
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	☐	☒
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	☐	☒

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the Biological Opinion.

Streamlined NLEB Consultation Table - General Project Information	**YES**	**NO**
Does the project occur within 0.25 miles of a known hibernaculum?	☐	☒
Does the project occur within 150 feet of a known maternity roost tree?	☐	☒
Does the project include forest conversion[1]? (if yes, report acreage below)	☒	☐
Estimated total acres of forest conversion (including winter)	1.5	
If known, estimated acres[2] of forest conversion from April 1 to October 31	1.5	
If known, estimated acres of forest conversion from June 1 to July 31[3]	0	
Does the project include timber harvest? (if yes, report acreage below)	☐	☒
Estimated total acres of timber harvest		

If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	☐	☒
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	☐	☒
Estimated wind capacity (MW)		

[1] Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the Biological Opinion).
[2] If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.
[3] If the activity includes tree clearing in June and July, also include that acreage in April to October.

No Effect Determinations

Section 7 of Endangered Species Act of 1973, as amended (Act), requires each Federal agency to review any action that it funds, authorizes or carries out to determine whether it may affect threatened, endangered, proposed species or listed critical habitat. Federal agencies (or their designated representatives) must consult with the U.S. Fish and Wildlife Service (Service) if any such effects may occur as a result of their actions. Consultation with the Service is not necessary if the proposed action will not directly or indirectly affect listed species or critical habitat. If a federal agency finds that an action will have no effect on listed species or critical habitat, it should maintain a written record of that finding that includes the supporting rationale.

No Effect Determination – Higgins eye pearlymussel (*Lampsilis higginsii*)
No Effect Determination – Prairie bush clover (*Lespedeza leptostachya*)
No Effect Determination – Snuffbox (*Epioblasma triquetra*)
No Effect Determination – Winged Mapleleaf (*Quadrula fragosa*)

Higgins eye pearlymussel – *No effect determination.*
No known occurrences for this species exist within the project area. Suitable habitat is not present. ***Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.***

Prairie bush clover – *No effect determination.*
No known occurrences for this species exist within the project area. Suitable habitat is not present. ***Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.***

Snuffbox – *No effect determination.*
No known occurrences for this species exist within the project area. Suitable habitat is not present. ***Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.***

Winged Mapleleaf – *No effect determination.*
No known occurrences for this species exist within the project area. Suitable habitat is not present. ***Therefore, MnDOT on behalf of the FHWA has made a determination of no effect for this species.***

Notice of Determination

Northern Long-eared Bat— May affect, but will not cause prohibited incidental take.

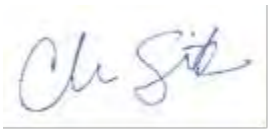
According to the information provided, this project will include tree removal. A single NLEB hibernaculum exists approximately one mile away from project limits. No known roost trees exist in the vicinity of the project area (MNDNR 2016). By signing this form, MnDOT on behalf of the FHWA, determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, MnDOT may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic Biological Opinion. MnDOT will update this determination annually for multi-year activities.

MnDOT, on behalf of the FHWA, understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the

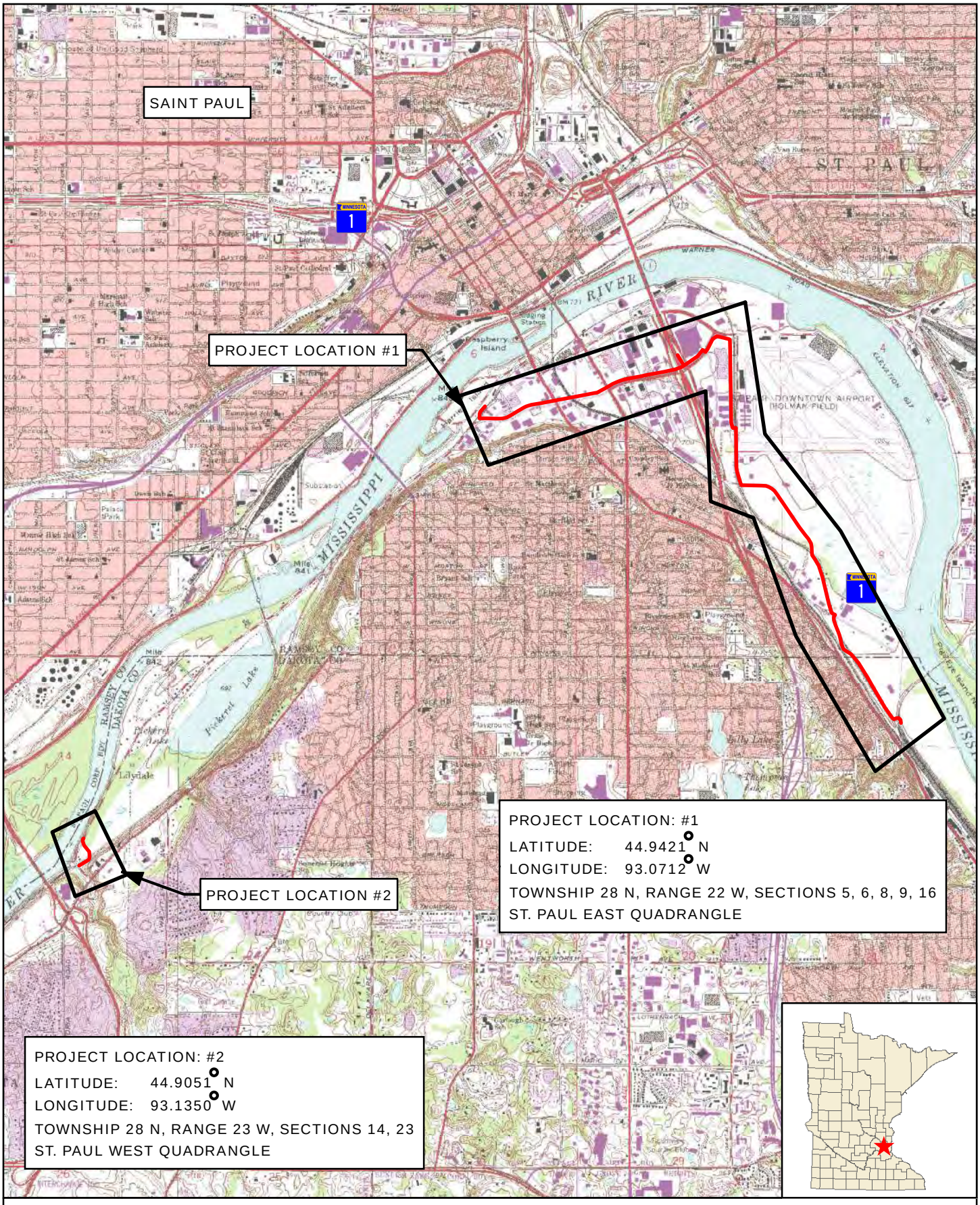
appropriate USFWS Field Office. MnDOT will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. **Involved parties will promptly notify the appropriate USFWS Field Office, and MnDOT Office of Environmental Stewardship, upon finding a dead, injured, or sick NLEB.**

Please contact me if there are any questions or concerns.



Christopher E. Smith, M.Sc., AWB®
Wildlife Ecologist | Office of Environmental Stewardship
Minnesota Department of Transportation
395 John Ireland Blvd., MS 620
Saint Paul, MN 55155

E-mail: Christopher.E.Smith@state.mn.us
Phone: 651-366-3605



USGS 7.5-MINUTE TOPOGRAPHIC MAP

ST. PAUL EAST QUADRANGLE
ST. PAUL WEST QUADRANGLE
FEBRUARY 24, 2016

1:40,000

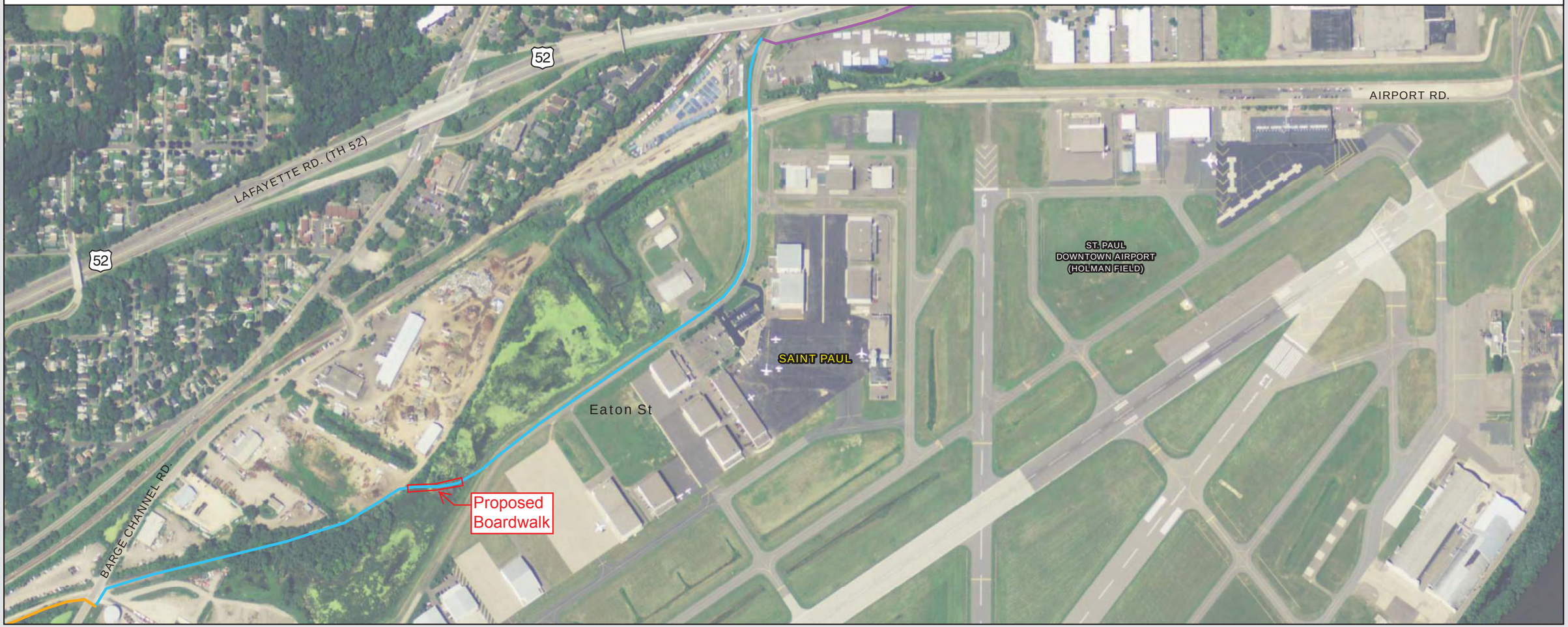
N
W E
S

TKDA

Harriet Island to South St Paul Regional
Trail S.P. 164-090-014
Project Layout

March 2016

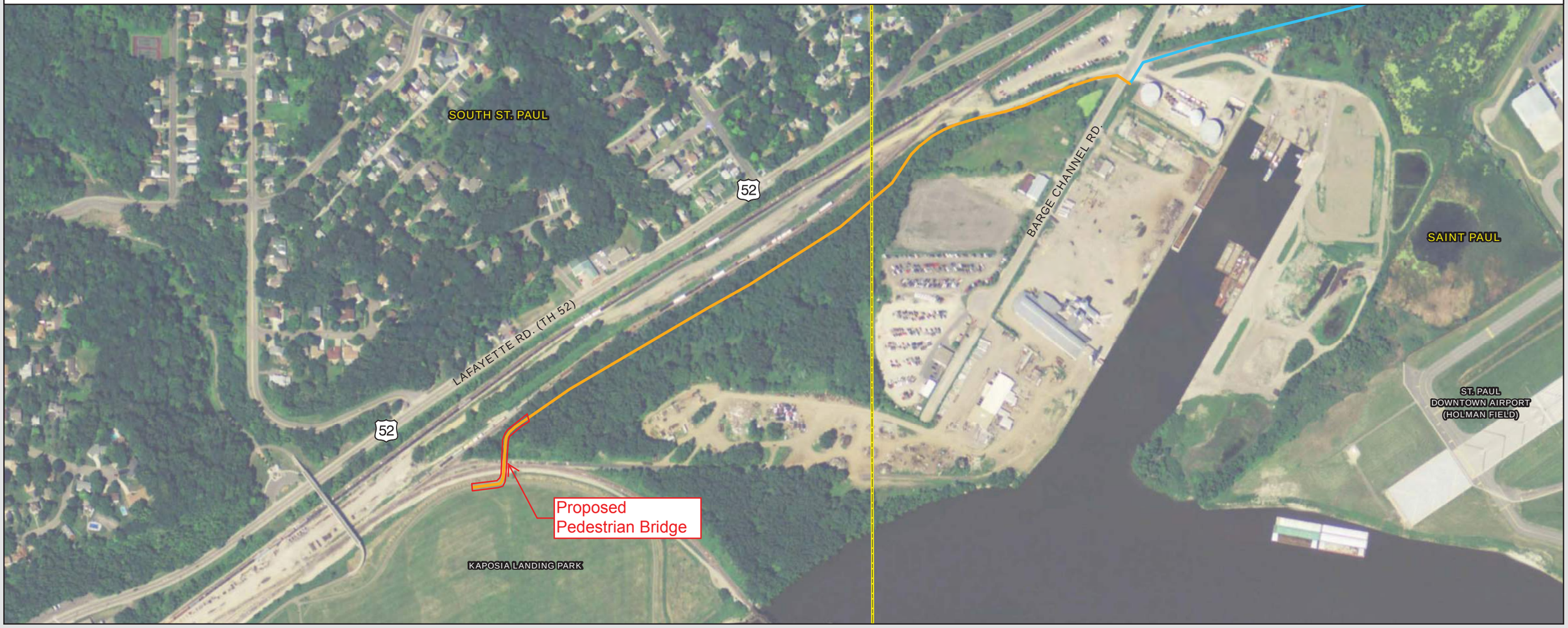
Harriet Island to South St Paul Regional
Trail S.P. 164-090-014
Project Layout



REGIONAL TRAIL

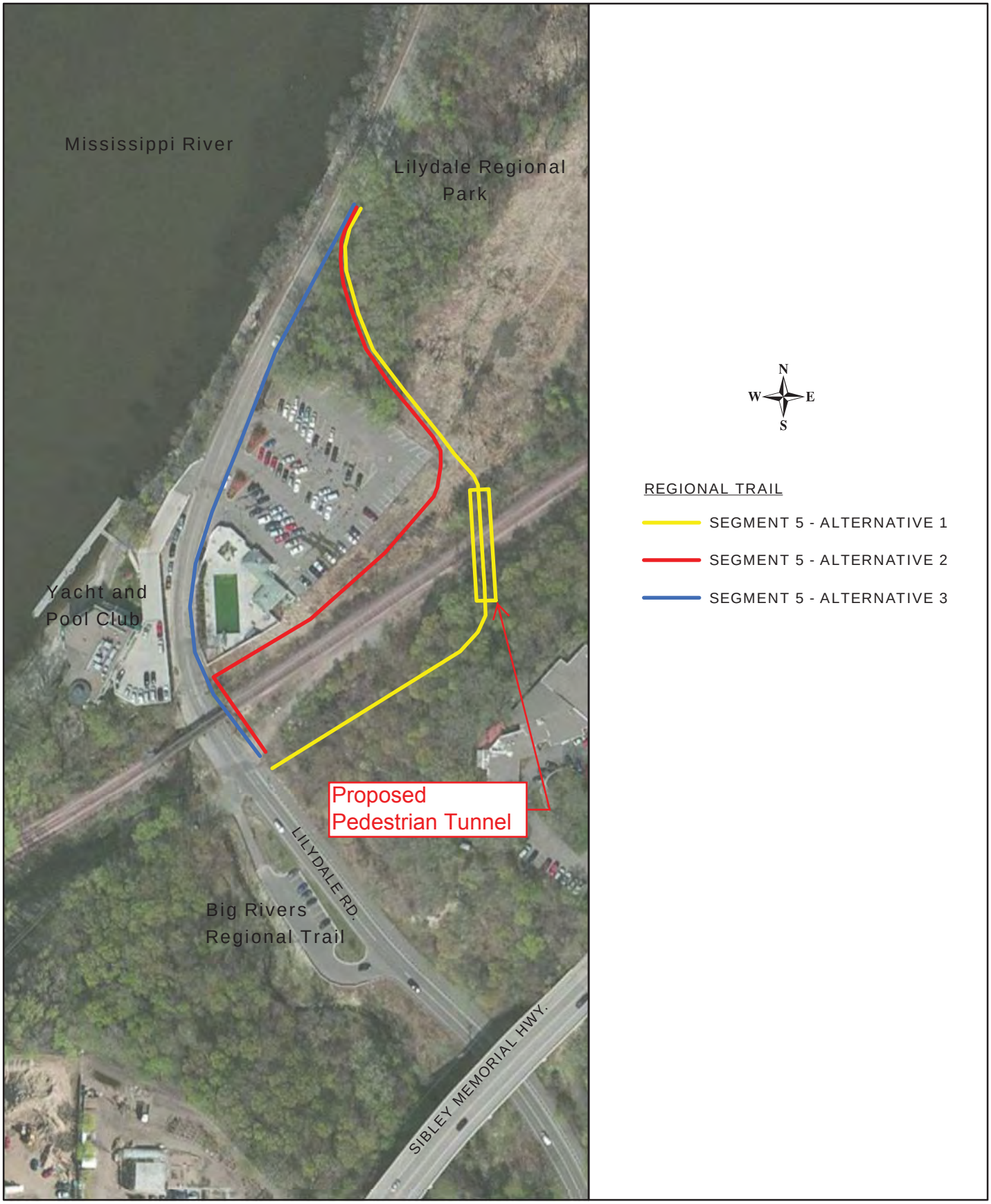
- SEGMENT 2
- SEGMENT 3
- SEGMENT 4

Harriet Island to South St Paul Regional
Trail S.P. 164-090-014
Project Layout



REGIONAL TRAIL
- SEGMENT 3
- SEGMENT 4

Harriet Island to South St Paul Regional
Trail S.P. 164-090-014
Project Layout



DEPARTMENT OF TRANSPORTATION

March 24, 2017

No Effect Determination – Rusty-patched Bumble Bee (*Bombus affinis*)

Project(s):

State Project #	Road	County	Short Description
010-090-006	NA	Carver	Project improves an existing aggregate trail with a paved, bituminous surface. An additional rest stop / overlook will be constructed within the existing right-of-way.
019-060-003	NA	Dakota	Project will install a trailhead facility near an existing trail. Facility will include a small paved parking area, a shelter, and restrooms. Much of the area has been disturbed previously.
019-090-017	NA	Dakota	This project involves the construction of a new multi-use pedestrian trail to be located between the existing UP Rail and TH 13 from I-494 south to Lone Oak Road.
019-631-044	CSAH 31	Dakota	Intersection reconfiguration, construct turn lanes, signal pole relocation, ADA upgrades, and associated activities. ***Within HPA but unsuitable roadway and turf grass habitat.***
164-090-014	NA	Dakota & Ramsey	The project involves the construction of an off road paved multiuse trail. Portions of the trail may be constructed on the existing sidewalk or on the roadway itself.
019-090-019 & 019-060-004	NA	Dakota	This project is located immediately east of Trunk Highways 52 and 55, between the oil refinery and the wooded bluffs of the Mississippi River. The project involves the extension of the trail 1.8 miles south from the existing trail, which ends at 117th St.
091-090-077	NA	Hennepin	The proposed project includes construction of an approx. 0.9 mile 10-foot wide bituminous multi-use trail along the south side of 57th Avenue from Logan Avenue to Lyndale Avenue in the City of Brooklyn Center.
107-090-009	NA	Hennepin	This project will construct an off road 12' trail, trailhead and amenities, and will reconstruct a portion of Old Cedar Avenue and the U.S. Fish & Wildlife Service Parking Lot.
141-591-010	NA	Hennepin	ADA improvements, signals, bicycle trail, sidewalk upgrades, curb extensions, and pavement markings.
082-591-001 & 082-591-003	NA	Washington	Construct new multi-use trails to connect to existing trail system.

In response to your request, the above referenced action has been reviewed for potential effect to federally-listed threatened, endangered, proposed, candidate species and listed critical habitat. As a result of this review, a determination of **No Effect** has been made.

Rationale for Determination: No known occurrences for rusty-patched bumble bee (RPBB) and/or suitable habitat(s) exist within the action area.

- Project within USFWS identified High Potential Area: **No (unless otherwise noted above)**

All other species previously reviewed for Section 7 compliance not re-reviewed here.

Federally-Listed Species/Designated Critical Habitat in the Action Area

Section 7 of Endangered Species Act of 1973, as amended (Act), requires each Federal agency to review any action that it funds, authorizes or carries out to determine whether it may affect threatened, endangered, proposed species, or listed critical habitat. Federal agencies (or their designated representatives) must consult with the U.S. Fish and Wildlife Service (Service) if any such effects may occur as a result of their actions. Consultation with the Service is not necessary if the proposed action will not directly or indirectly affect listed species or critical habitat. If a federal agency finds that an action will have no effect on listed species or critical habitat, it should maintain a written record of that finding that includes the supporting rationale.

All species previously reviewed for Section 7 compliance not re-reviewed here.

Based on the information that you provided and the nature of the activities proposed, MnDOT on behalf of the FHWA, has made a determination of No Effect for the above referenced project. No further action under Section 7 of the Act is required. However, if information becomes available indicating that federally-listed species or designated critical habitat may be affected, please contact this office and consultation with the Service will be initiated if necessary.

Please contact me if there are questions or concerns.

Thank you,

Christopher E. Smith, M.Sc., CWB®
Wildlife Ecologist | Office of Environmental Stewardship
Minnesota Department of Transportation
395 John Ireland Blvd., MS 620 | Saint Paul, MN 55155
E-mail: Christopher.E.Smith@state.mn.us | Phone: 651-366-3605

Minnesota Department of Transportation

Office of Environmental Stewardship
Mail Stop 620
395 John Ireland Boulevard
St. Paul, MN 55155-1800

Office Tel: (651) 366-4291
Fax: (651) 366-3603

May 13, 2016

Mark Daubenberger
TKDA
444 Cedar Street, Suite 1500
St. Paul, MN 55101
mark.daubenberger@tkda.com

Re: S.P. 164-090-014, Harriet Island to South St. Paul Regional Trail, St. Paul and South St. Paul, Ramsey and Dakota Counties

Dear Mr. Daubenberger,

We have reviewed the above-referenced undertaking pursuant to our FHWA-delegated responsibilities for compliance with Section 106 of the National Historic Preservation Act, as amended (36 CFR 800), and as per the terms of the 2005 Section 106 Programmatic Agreement between the FHWA and the Minnesota State Historic Preservation Office (SHPO). The Section 106 review fulfills MnDOT's responsibilities under the Minnesota Historic Sites Act (MS 138.665-.666), the Field Archaeology Act of Minnesota (MS 138.40); and the Private Cemeteries Act (MS 307.08, Subd. 9 and 10).

This project will construct an off-road, paved, multi-use trail. Where property and topography allow, the trail width will be 12 feet; otherwise, it will be 10 feet. The cut for the trail will generally be nominal, enough to place a 6-inch aggregate base layer. In very localized areas where poor soil conditions are encountered, an additional subcut of two to three feet might be required. The trail comprises five segments. Segment 1 will be constructed on the north side of Plato Boulevard east from Harriet Island Regional Park using one of two alternatives. The first replaces the existing sidewalk with a trail in the boulevard, which would require either removing the boulevard trees or acquiring permanent right of way. The second involves removing a westbound Plato Boulevard traffic lane to accommodate the trail. Segment 2 will be between Plato Boulevard and Eaton Street, on the east side of Chester Street and the east frontage road of TH 52. The street would likely be narrowed to allow for the trail to be placed within the existing right of way. A potential alternate is for the trail to be located on the east side of the frontage road from Plato Boulevard to Eaton Street. Segment 3 will begin at the TH 52 frontage road, proceeding south on the south side of Eaton Street. The trail will cross the wetland located on the west side of the St. Paul Downtown Airport with a boardwalk, continuing to Barge Channel Road along the east side of the Union Pacific Railroad right of way. Segment 4 will proceed south from Barge Channel Road to Kaposia Landing Park along the east side of the Union Pacific Railroad right of way. A pedestrian bridge is proposed to carry the trail of the railroad tracks into the park. Three alternatives are being considered for Segment 5, which will connect the Lilydale Regional Park Trail and Big Rivers Regional Trail. The first would involve constructing a pedestrian underpass beneath the Union Pacific Railroad track. The second would place the trail on the east and south sides of the Pool and Yacht Club facility. The profile grade of the first two alternatives would be at or above ground elevation. The third alternative places the trail along Lilydale Road.

Based on our existing programmatic agreements with various tribal groups, we sent a consultation letter to the following tribes: Fort Peck Tribes, Lower Sioux Indian Community, Santee Sioux Nation, Sisseton-Wahpeton Oyate Community, and Turtle Mountain Band of Chippewa. We did not receive any response within the allotted time.

The area of potential effects (APE) for the project consists of the proposed construction area. Because all work will occur within areas previously disturbed by road and associated construction, disturbed by landfill construction, or having low archaeological potential, it is unlikely that the APE contains intact, significant archaeological resources. No historic structures are located within the APE.

The finding of this office is that there will be **no historic properties affected** by the project as currently proposed. If the project scope changes, please provide our office with the revised information and we will conduct an additional review.

Your request for review indicates that the project requires a permit from the U.S. Army Corps of Engineers. FHWA is the lead federal agency for this Section 106 Review. As per the terms of the 2005 PA between the FHWA and the Corps, this letter concludes the Section 106 Review for this project, and the Corps has no further 106 responsibilities under 36 CFR 800. **Please include a copy of this findings letter with your permit application to aid in their review.**

Sincerely,

Renée Hutter Barnes, Historian
Cultural Resources Unit

cc: MnDOT CRU Project File

CITY OF SAINT PAUL
Mayor Christopher B. Coleman

400 City Hall Annex
25 West Fourth Street
Saint Paul, Minnesota 55102
www.stpaul.gov/parks

Telephone: 651-266-6400
Facsimile: 651-292-7405
TTY: 651-266-6378

September 27, 2016

Mark Daubenburger Project Engineer
TKDA
444 Cedar St., Suite 1500
Saint Paul, MN 55101

Subject: Project Memorandum Review Comments
SP164-090-014
Harriet Island to South St. Paul
4(f)/6(f) Impacts

Dear Mr. Daubenburger:

I have reviewed the Harriet Island to South St. Paul Regional Trail (HISSPRT) project, (also known as the Robert Piram Regional Trail) as described in the Project Memorandum for MNDOT review. It is my determination that the proposed project will not have an adverse effect on Harriet Island Regional Park, Lilydale Regional Park or on any other park property. Furthermore, the HISSPRT project would not constitute a conversion of use pursuant to Section 6(f) of the L&WCF Act.

I support the completion of the HISSPRT project due to the benefits to both the trails and park systems of the City of Saint Paul, the City of South St. Paul and Dakota County.

Sincerely,

Mike Hahm CPRP
Director

City of South St. Paul

Parks & Recreation

October 3, 2016

Mr. Mark Krebsbach
Dakota County Engineer
Dakota County Western Service Center
14955 Galaxie Avenue
Apple Valley, MN 55124

RE: Section 4(f) de minimis understanding for Kaposia Landing Park

Dear Mr. Krebsbach:

The proposed Harriet Island to South St. Paul Regional Trail Project will use Section 4(f) (codified in 49 USC Sec. 303) property within Kaposia Landing Park in South St. Paul. The statute at 49 CFR Sec. 303 is a federal law intended to prevent conversion of certain parks, wildlife and waterfowl refuges, recreation areas or historic properties to transportation use, unless the U.S. Department of Transportation determines there is no feasible and prudent alternative, and all possible planning has been done to minimize harm to properties covered by the section. Because the project is an independent bikeway and walkway project covered by the Programmatic Section 4(f) Statement for Independent Bikeway or Walkway Construction Projects, the owner of the Section 4(f) resource must submit written approval of the project.

Coordination has taken place between representatives of Dakota County and the City of South St. Paul regarding the selection of the trail design involving the park property. As a result of this coordination, the City of South St. Paul is supportive of the trail design being advanced by Dakota County through the National Environmental Policy Act (NEPA) environmental review process. A bridge will be constructed to elevate the trail over the Union Pacific Railroad spur tracks in the northwest corner of Kaposia Landing Park and continue south connecting to the existing Mississippi River Trail and River to River Greenway for approximately 1,200 feet of trail within Kaposia Landing. The proposed trail will not adversely affect the activities, features, and attributes that are important to the resource. This is based on the following considerations:

- The proposed trail is consistent with the designated use of the property.
- The proposed trail project will enhance access to the park and recreational facilities.
- The proposed project will enhance the features of this property and will not detract from the facility's use.

The City looks forward to continuing to work with Dakota County on this project. If you have any questions, please feel free to contact me at 651-366-6202 or cesser@sspmn.org.

Respectfully,

Christopher Esser
Director of Parks and Recreation

Cc: Chris Hartzell, City Engineer
John Sass, Dakota County Transportation Department

Mark J. Daubenberger

From: Juran, Rylan (DOT) <Rylan.Juran@state.mn.us>
Sent: Tuesday, October 25, 2016 1:52 PM
To: Mark J. Daubenberger
Subject: RE: SP 064-090-014 _ Harriet Island to South St Paul Regional Trail Early Coordination

Mark:

Due to the project's proximity to the St. Paul Downtown airport, the Office of Aeronautics recommends that you file Form 7460-1 with the FAA. Instruction for filing the form can be found here: https://oeaaa.faa.gov/oeaaa/external/portal.jsp

I encourage you to continue to work with MAC staff to identify which portions of the project must be studied under this process and any other regulatory issues like releasing the land from aeronautical use.

Thank you for the opportunity to comment.

Rylan Juran, C.M.
Aviation Planner and Zoning Coordinator
MnDOT Aeronautics
651-234-7190

From: Mark J. Daubenberger [mailto:mark.daubenberger@tkda.com]
Sent: Monday, September 12, 2016 4:29 PM
To: Juran, Rylan (DOT)
Subject: SP 064-090-014 _ Harriet Island to South St Paul Regional Trail Early Coordination

Rylan,

On behalf of the City of Saint Paul and Dakota County, TKDA is developing the design of the Harriet Island to South St Paul Regional Trail in the cities of Saint Paul and South St Paul. Attached is a PDF of the project location. The project involves the construction of an off-road trail and has three associated grade separations, each of which is shown in the location map, and are within the influence area of the Downtown Saint Paul airport.

The first structure, Bridge No. R0733, is a prefabricated steel truss over the Union Pacific railroad tracks adjacent to Kaposia Park in South St Paul. The scope of work for this structure would include the use of cranes.

The other two structures, Bridge Nos. R0738 and R0739, are timber boardwalk structures that are located with the Airport Marsh that is south of the airport. The scope of work for these structures would include the use of smaller construction equipment such as backhoes and bobcats.

Parts of the project are located within land owned by the Metropolitan Airports Commission. Therefore, we have been involving MAC staff during the development of the project.

Please respond to this email with any concerns/comments that you may have. Feel free to contact me with questions.

-Mark

Mark Daubenberger | Registered Engineer
444 Cedar Street, Suite 1500, Saint Paul, MN 55101
P **651.292.4611** | C **612.839.5237** | **tkda.com**
Engineer: MN

The Minnesota Department of Transportation invites you to take our two-minute survey to help us improve our services. MnDOT External Customer Survey
Thank you for telling us about your experience

WETLAND ASSESSMENT & TWO PART FINDING
Robert Piram Regional Trail

County: Ramsey and Dakota

Major Watershed: 20, Mississippi River – Twin Cities

WETLAND ASSESSMENT

A wetland investigation was completed for the project on April 26 and May 19, 2016. Eight wetland basins were identified and delineated within or adjacent to the proposed trail. The wetland basins and preliminary impacts are summarized in the table below. Refer to the attached Wetland Impact Maps (Sheets W1-W28) for further details. The Wetland Investigation Report dated May 23, 2016 and revised August 19, 2016 is available upon request.

WETLAND ASSESSMENT								
Wetland ID	STP-1	STP-2	STP-3	F	E	EE	Lily-1	Lily-2
Classification	Type 2	Type 1/3/4	Type 3	Type 3	Type 3	Type 1	Type 3	Type 1
Approx. Basin Size (acres)	0.15	37.4	37.4	0.22	0.315	0.265	0.50	0.20
Anticipated Encroachment Size (acres)	0.105	0.299	0.002	0.043	0.001	0.000	0.000	0.000
Type of Impact: fill, excavation, drain	Cut & Fill	Fill	Fill	Cut & Fill	Fill	N/A	N/A	N/A
% Encroachment to Basin Size	70%	0.8%	0.005%	20%	0.32%	0%	0%	0%
Protected wetland? Y/N	Y	Y	Y	N (pond)	Y	Y	Y	Y
Connection to other wetlands? Y/N	Y	Y	N	N	Y	Y	Y	Y
Impacts to public water supply? Y/N	N	N	N	N	N	N	N	N
Water Quality impacts? ---- recharge/discharge ----water pollution ----flooding ----sedimentation ----erosion	N	N	N	N	N	N	N	N
Impacts to fish/wildlife & habitat?	N	N	N	N	N	N	N	N
Impacts to recreational, cultural or scientific uses?	N	N	N	N	N	N	N	N

AVOIDANCE ALTERNATIVES

Refer to Exhibit 1 of the Project Memorandum for the location of the respective trail segments referenced below.

In each of the scenarios that follow, a No-Build Alternative was considered. In each scenario, this alternative results in no encroachment into the wetland basins; however, this alternative does not meet the purpose and need for the project, which is discussed in Section 3 of the Project Memorandum. The No-Build Alternative was not selected.

Trail A

Three construction alternatives were considered for connecting the River to River Greenway and Minnesota River Regional Greenway to Lilydale Regional Park, which are depicted in Exhibit 1A of the Project Memorandum.

Alternate 1. This alternative involves constructing a 10-ft wide off-road trail segment adjacent to the south side of the UPRR tracks, crossing beneath the tracks in an underpass, and connecting to Lilydale Regional Park on the east side of the Pool and Yacht Club. This alternative, which impacts Wetlands Lily-1 and Lily-2, was determined to be not feasible primarily due to topographical constraints, water table, constructability issues and railroad permissibility issues.

Alternate 2. This alternate involves constructing a 10-ft wide off-road trail along the east side of Lilydale Road, passing beneath the UPRR bridge, turning to the east along the north side of the railroad corridor, and then north to Lilydale Regional Park. The east-west segment along the UPRR corridor is constrained by the UPRR property line and the Pool and Yacht Club pool facility. UPRR indicated that a trail would not be allowed within their right of way due to security concerns, forcing the alignment to bisect Wetland Lily-1.

Alternate 3. This alternate involves constructing a 10-ft wide off-road trail along the east side of Lilydale Road, passing beneath the UPRR bridge, and continuing along the east side of Lilydale Road to Lilydale Regional Park. There are no wetland impacts with this alternative.

Alternative 3 meets the purpose and need for the project (see Section 3 of the Project Memorandum) and is preferred. The proposed construction is contingent upon obtaining a permanent easement from the Yacht Club.

AVOIDANCE ALTERNATIVES – TRAIL A					
	Anticipated Encroachment per Alternative, acres				
Wetland ID	No-Build	Alt. #1	Alt. #2	Alt. #3	
Lily-1	0	0.145	0.183	0	
Lily-2	0	0.130	0	0	
Total, acres	0	0.275	0.183	0	

Trail B

There are no wetlands present in this segment.

Trail C

Two construction alternatives were considered for the Eaton Street portion of this segment as follows:

Alternate 1. This alternative involves constructing a 10-ft wide trail adjacent to a 10-ft wide grass boulevard on the south side of Eaton Street. The boulevard width is sized to accommodate ditch flow and in-place street lighting. This alternative, which impacts Wetland STP-1 and STP-2, is the preferred alternate.

Alternate 2. This alternative involves constructing a 10-ft wide trail behind a 5-ft wide grass boulevard on the south side of Eaton Street. The proximity of the trail to the street requires constructing a curb on the south side of the street and implementing a storm sewer system. This alternative impacts Wetland STP-1 and STP-2 to an extent similar to Alternative 1. Metropolitan Airport Commission, which is the road authority, did not support upgrading the roadway section to an urban street due to the additional maintenance required.

AVOIDANCE ALTERNATIVES – TRAIL C					
	Anticipated Encroachment per Alternative, acres				
Wetland ID	No-Build	Alt. #1	Alt. #2		
STP-1	0	0.105	0.100		
STP-2	0	0.006	0.004		
Total, acres	0	0.111	0.104		

Trail D

Eaton Street to Barge Channel Road. One construction alternative was considered for the segment of the trail between Eaton Street and Barge Channel Road. This alternative involves constructing two elevated timber boardwalks to carry a 10-ft wide trail across the lowlands of Wetland STP-2. In an effort to improve the ride quality of the trail and minimize maintenance requirements, the trail leading into and between the boardwalks where the in-place ground is higher is bituminous pavement placed on fill and a prepared aggregate base.

Barge Channel Road. On the south side of Barge Channel Road, three construction alternatives were considered.

Alternate 1. This alternative involves constructing a 10-ft wide trail from the east side of the intersection with UPRR track adjacent to the south of Barge Channel Road and continuing south along the east side the Saint Paul Port Authority property. The storm water pond that was delineated as Wetland F is impacted by this alternative and minimized by utilizing sub-standard horizontal curves. Pond storage that is lost due to trail fill would be mitigated by excavating an amount equal to what was filled. This alternative is preferred.

Alternate 2. This alternative involves constructing a 10-ft wide trail similar to Alternate 1, but using standard design criteria for the horizontal curves. The storm water pond that was delineated as Wetland F is impacted by this alternative. Pond storage that is lost due to trail fill would be mitigated by excavating an amount equal to what was filled.

Alternate 3. This alternative involves constructing a 10-ft wide trail from the east side of the intersection with UPRR track south along the UPRR right of way. The storm water pond that was delineated as Wetland F is impacted by this alternative. Pond storage that is lost due to trail fill would be mitigated by excavating an amount equal to what was filled. This alternative impacts storm water infrastructure and requires easement from UPRR.

Barge Channel Road to the Ramsey-Dakota County Line. One construction alternative was considered from south of the storm water pond to the Ramsey-Dakota County line. A 10-ft wide trail would be placed within a 16-ft easement that is adjacent the UPRR corridor that was granted to the City of Saint Paul by the Saint Paul Port Authority. This alternative impacts Wetland E.

AVOIDANCE ALTERNATIVES – TRAIL D					
	Anticipated Encroachment per Alternative, acres				
Wetland ID	No-Build	Alt. #1	Alt. #2	Alt. #3	
STP-2	0	0.293	0.293	0.293	
STP-3	0	0.002	0.002	0.002	
F	0	0.043	0.143	0.125	
E	0	0.001	0.001	0.001	
Total, acres	0	0.339	0.439	0.421	

Trail E

Wetlands are present within the area of Trail E. However, there are no wetland impacts in this segment.

MINIMIZATION MEASURES

The design seeks to minimize the wetland encroachment to the maximum extent practicable by the utilizing the following measures:

1. Investigate horizontal alignment shifts and context sensitive design measures, such as exceptions to standard design criteria, which satisfy the purpose and need of the project and fit within topographical constraints while minimizing impacts to wetland basins to the greatest feasible extent.
2. Reduce the width of the proposed bituminous trail from the preferred width of 12-ft to 10-ft.
3. Lowering the existing trail profile and using optimized fills slopes to meet current design standards.

Retaining walls are not proposed, as wetland encroachment would still occur and they create a blockage for wildlife movement.

WETLAND IMPACTS

WETLAND IMPACTS (Preferred Alternative)										
Wetland ID	Anticipated Encroachment per Type of Wetland, acres									Totals
	1/3/4	1	2	3	4	5	6	7	8	
STP-1			0.105							0.105
STP-2	0.299									0.299
STP-3				0.002						0.002
F				0.043						0.043
E				0.001						0.001
EE										
Lily-1										
Lily-2										
Totals	**0.299**		**0.105**	**0.046**						**0.450**

COMPENSATION (REPLACEMENT/ENHANCEMENTS)
Wetland replacement for the project will be accomplished through wetland banking credits and onsite mitigation. The exact wetland bank location has not been identified at this time and will be determined during the permitting process. Wetland F is an existing stormwater treatment basin. The volume of storage filled will be mitigated by excavating an equivalent volume to ensure that the water quality volume and flood storage volume of the pond are maintained.

CONCLUSION
Based upon the above factors and considerations, it is determined that there is no practicable alternative to the proposed construction in the identified wetlands, and the proposed action includes all practicable measures to minimize harm to the wetlands.

ATTACHMENTS
Wetland Impact Maps (Sheets W1-W28)

POOL & YACHT CLUB, INC
1600

IMPACTS
NO IMPACTS
THIS SHEET
THIS SHEET ONLY

WETLAND IMPACT

SCALE IN FEET
0 25 50

BIG RIVERS TRAIL

℄ LILYDALE ROAD

℄ TRAIL A

UNION PACIFIC RAILROAD

POOL

POOL & YACHT CLUB, INC
1600

City of Lilydale

Dakota County

Mississippi River

LILYDALE ROAD

DELINEATED WETLAND LILY-1
TYPE 3
PEMF
SHALLOW MARSH
SIZE = 0.50 AC. (MAY 2016)

DELINEATED WETLAND LILY-2
TYPE 1
PF01A
SEASONALLY FLOODED BASIN
SIZE = 0.20 AC. (MAY 2016)

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

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NO.	DATE	BY	DESCRIPTION OF REVISIONS

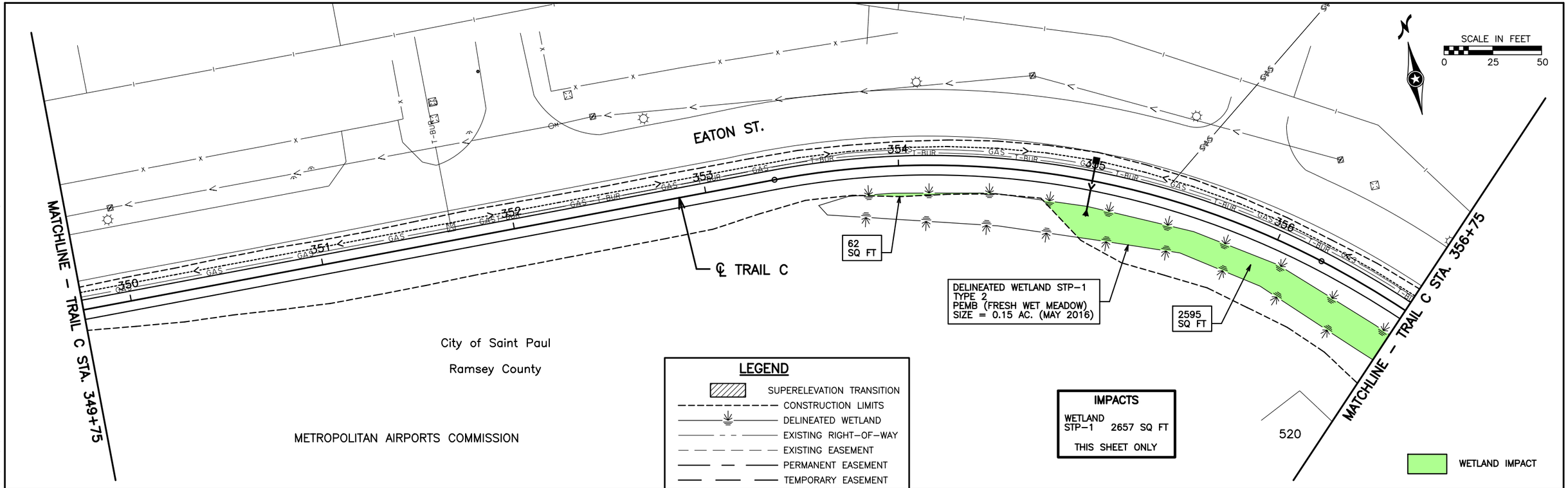
I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

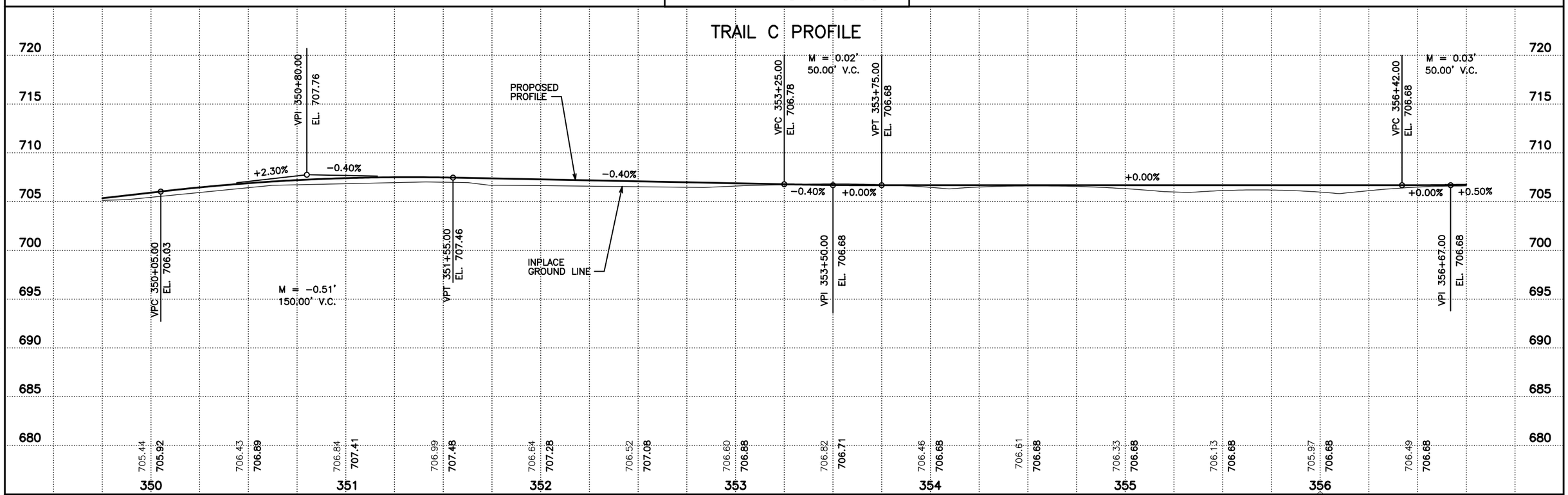
TKDA

ROBERT PIRAM
REGIONAL TRAIL

WETLAND IMPACTS
LILYDALE ROAD STA. 20+54.74 TO STA. 22+08

S.P. 164-090-014
SHEET NO. **W1** OF **W28**





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ROBERT PIRAM REGIONAL TRAIL

WETLAND IMPACTS

TRAIL C STA. 349+75 TO STA. 356+75

S.P. 164–090–014

SHEET NO. W2 OF W28

IMPACTS

WETLAND STP–1 1920 SQ FT

WETLAND STP–2 269 SQ FT

THIS SHEET ONLY

City of Saint Paul

Ramsey County

SCALE IN FEET 0 25 50

MATCHLINE – TRAIL C STA. 356+75

MATCHLINE – TRAIL C STA. 363+75

EATON ST.

℄ TRAIL C

T-BUR GAS 4" PEY–P CENTURYL INK

357 358 359 360 361 362 363

1920 SQ FT

269 SQ FT

DELINEATED WETLAND STP–1
TYPE 2
PEMB (FRESH WET MEADOW)
SIZE = 0.15 AC. (MAY 2016)

DELINEATED WETLAND STP–2
TYPE 1/3/4
PF01/EM1/AB/A/C/G
(SEASONALLY FLOODED BASIN/
SHALLOW MARSH/DEEP MARSH)
SIZE = 37.4 AC. (MAY 2016)

METROPOLITAN AIRPORTS COMMISSION

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT–OF–WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

WETLAND IMPACT

TRAIL C PROFILE

PROPOSED PROFILE

INPLACE GROUND LINE

VPT 356+92.00 EL. 706.80
VPC 357+25.00 EL. 706.97
VPI 357+50.00 EL. 707.10
VPT 357+75.00 EL. 707.15
VPC 357+76.00 EL. 707.15
VPI 358+01.00 EL. 707.20
VPT 358+26.00 EL. 707.45
VPC 358+59.00 EL. 707.78
VPI 358+89.00 EL. 708.08
VPT 359+19.00 EL. 707.48
VPC 359+25.00 EL. 707.36
VPI 359+50.00 EL. 706.86
VPT 359+75.00 EL. 706.86
VPI 361+40.00 EL. 706.86
VPC 361+15.00 EL. 706.86
VPC 361+65.00 EL. 706.96
VPT 361+65.00 EL. 706.96

M = 0.05' 50.00' V.C.
M = –0.02' 50.00' V.C.
M = –0.23' 60.00' V.C.
M = 0.13' 50.00' V.C.
M = 0.03' 50.00' V.C.

+0.50% +0.50% +0.20% +0.20% +1.00% +1.00% –2.00% –2.00% +0.00% +0.00% +0.00% +0.40%

725 720 715 710 705 700 695 690 685

706.48 706.84 | 706.85 707.08 | 706.40 707.24 | 707.67 707.69 | 707.84 707.77 | 707.14 706.98 | 706.61 706.86 | 705.43 706.86 | 705.00 706.86 | 705.23 706.91 | 705.43 707.09 | 705.70 707.27 | 705.77 707.43 | 705.78 707.58

357 358 359 360 361 362 363

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PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

WETLAND IMPACTS

TRAIL C STA. 356+75 TO STA. 363+75

S.P. 164–090–014

SHEET NO. W3 OF W28

DATE: 12/12/2017 TIME: 7:55:44 AM
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City of Saint Paul

Ramsey County

SCALE IN FEET

0 25 50

MATCHLINE – TRAIL C STA. 363+75

MATCHLINE – TRAIL C STA. 370+75

EATON ST.

℄ TRAIL C

METROPOLITAN AIRPORTS COMMISSION

CENTURYLINK

2" PEY-P

4" PEY-P

GAS

T-BUR

36" RCP

364 365 366 367 368 369 370

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

IMPACTS

NO IMPACTS THIS SHEET

THIS SHEET ONLY

WETLAND IMPACT

TRAIL C PROFILE

VPI 366+65.00

EL. 708.96

+0.40% −0.30%

PROPOSED PROFILE

INPLACE GROUND LINE

M = −0.88'

1,000.00' V.C.

725 720 715 710 705 700 695 690 685

364	365	366	367	368	369	370
705.78 / 707.58	706.07 / 707.70	706.73 / 707.81	706.56 / 707.90	706.68 / 707.98	706.70 / 708.03	706.77 / 708.07
706.98 / 708.10	707.22 / 708.10	707.18 / 708.09	706.93 / 708.05	706.90 / 708.01	706.55 / 707.94	706.26 / 707.86
706.41 / 707.76						

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

WETLAND IMPACTS

TRAIL C STA. 363+75 TO STA. 370+75

S.P. 164-090-014

SHEET NO. **W4** OF **W28**

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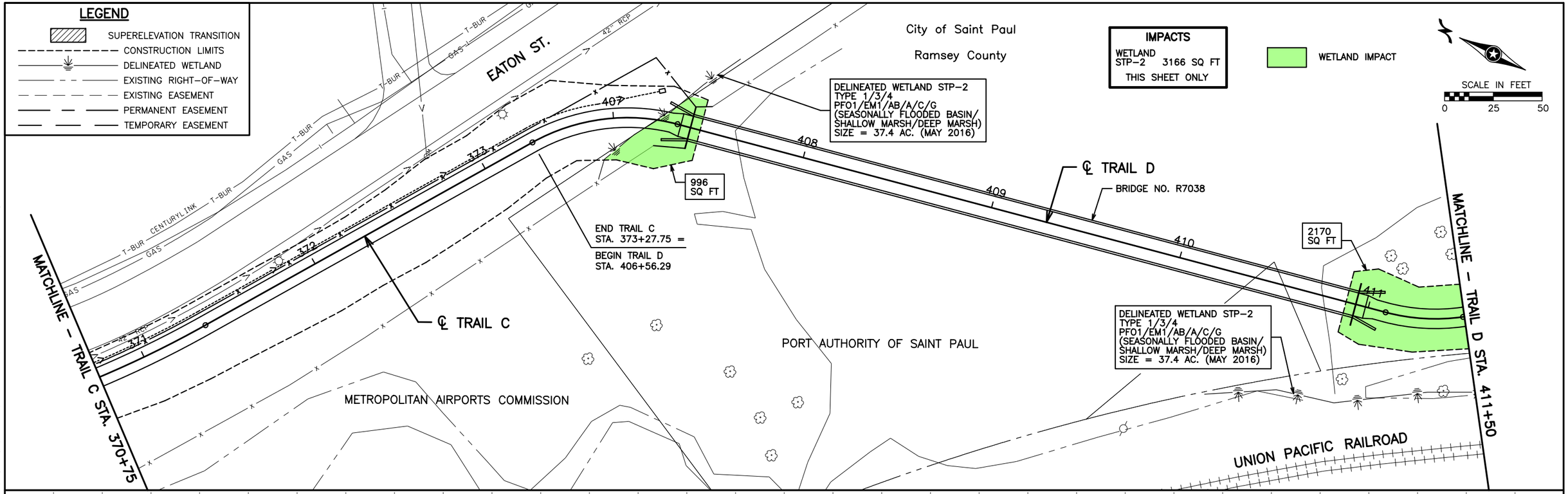

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

WETLAND IMPACTS
TRAIL C STA. 370+75 TO STA. 373+27.25
TRAIL D STA. 406+56.29 TO STA. 411+50

S.P. 164-090-014

SHEET NO. W5 OF W28

DATE: 12/12/2017 TIME: 7:55:48 AM
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LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

IMPACTS

WETLAND STP-2 9578 SQ FT

WETLAND STP-3 82 SQ FT

THIS SHEET ONLY

City of Saint Paul

Ramsey County

PORT AUTHORITY OF SAINT PAUL

MATCHLINE – TRAIL D STA. 411+50

MATCHLINE – TRAIL D STA. 418+50

℄ TRAIL D

9383 SQ FT

DELINEATED WETLAND STP-2
TYPE 1/3/4
PF01/EM1/AB/A/C/G
(SEASONALLY FLOODED BASIN/
SHALLOW MARSH/DEEP MARSH)
SIZE = 37.4 AC. (MAY 2016)

DELINEATED WETLAND STP-2
TYPE 1/3/4
PF01/EM1/AB/A/C/G
(SEASONALLY FLOODED BASIN/
SHALLOW MARSH/DEEP MARSH)
SIZE = 37.4 AC. (MAY 2016)

DELINEATED WETLAND STP-3
TYPE 3
PEMCx (SHALLOW MARSH)
SIZE = 37.4 AC. (MAY 2016)

82 SQ FT

195 SQ FT

BRIDGE NO. R0739

UNION PACIFIC RAILROAD

412 413 414 415 416 417 418

SCALE IN FEET

0 25 50

WETLAND IMPACT

TRAIL D PROFILE

715 710 705 700 695 690 685 680

VPC 411+50.00 EL. 696.31
VPT 411+50.00 EL. 696.31
VPI 411+75.00 EL. 695.31
VPT 412+00.00 EL. 695.18
M = 0.22' 50.00' V.C.
−4.00%
−0.50%
−0.50%
VPC 413+41.00 EL. 694.48
VPI 413+66.00 EL. 694.35
VPT 413+91.00 EL. 694.55
M = 0.08' 50.00' V.C.
−0.50%
+0.80%
PROPOSED PROFILE
INPLACE GROUND LINE
VPC 414+83.50 EL. 695.29
VPI 415+08.50 EL. 695.49
M = 0.20' 50.00' V.C.
+0.80%
+4.00%
VPT 415+33.50 EL. 696.49
VPC 415+33.50 EL. 696.49
+4.00%
VPI 415+58.50 EL. 697.49
+0.00%
M = −0.25' 50.00' V.C.
VPT 415+83.50 EL. 697.49
+0.00%
BRIDGE NO. R0739
+0.00%
VPC 417+55.00 EL. 697.49
+0.00%
VPI 417+80.00 EL. 697.49
M = −0.07' 50.00' V.C.
−1.20%
VPT 418+05.00 EL. 697.19
VPC 418+05.00 EL. 697.19
M = 0.39' 50.00' V.C.
−1.20%
+5.00%
VPI 418+30.00 EL. 696.89

696.31 695.18 694.93 694.68 694.44 694.63 695.03 695.51 697.05 697.49 697.49 697.49 697.49 697.25 697.91

412 413 414 415 416 417 418

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ROBERT PIRAM
REGIONAL TRAIL

WETLAND IMPACTS

TRAIL D STA. 411+50 TO STA. 418+50

S.P. 164-090-014

SHEET NO. W6 OF W28

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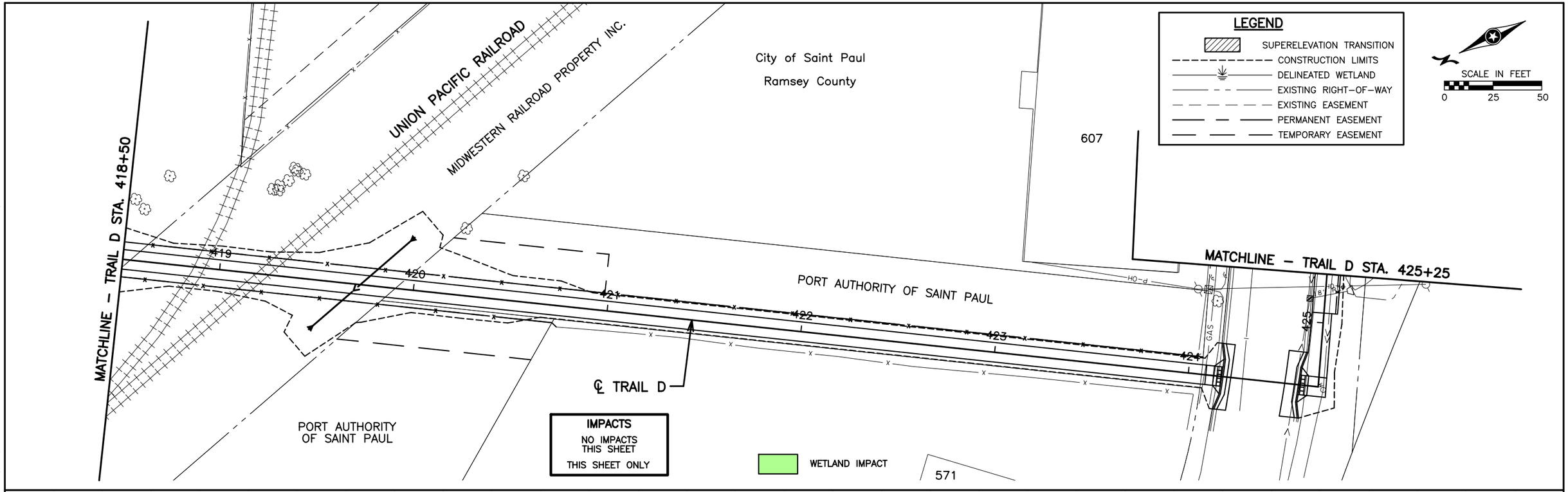

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

WETLAND IMPACTS

TRAIL D STA. 418+50 TO STA. 425+25

S.P. 164-090-014

SHEET NO. W7 OF W28

DATE: 12/12/2017 TIME: 7:55:52 AM
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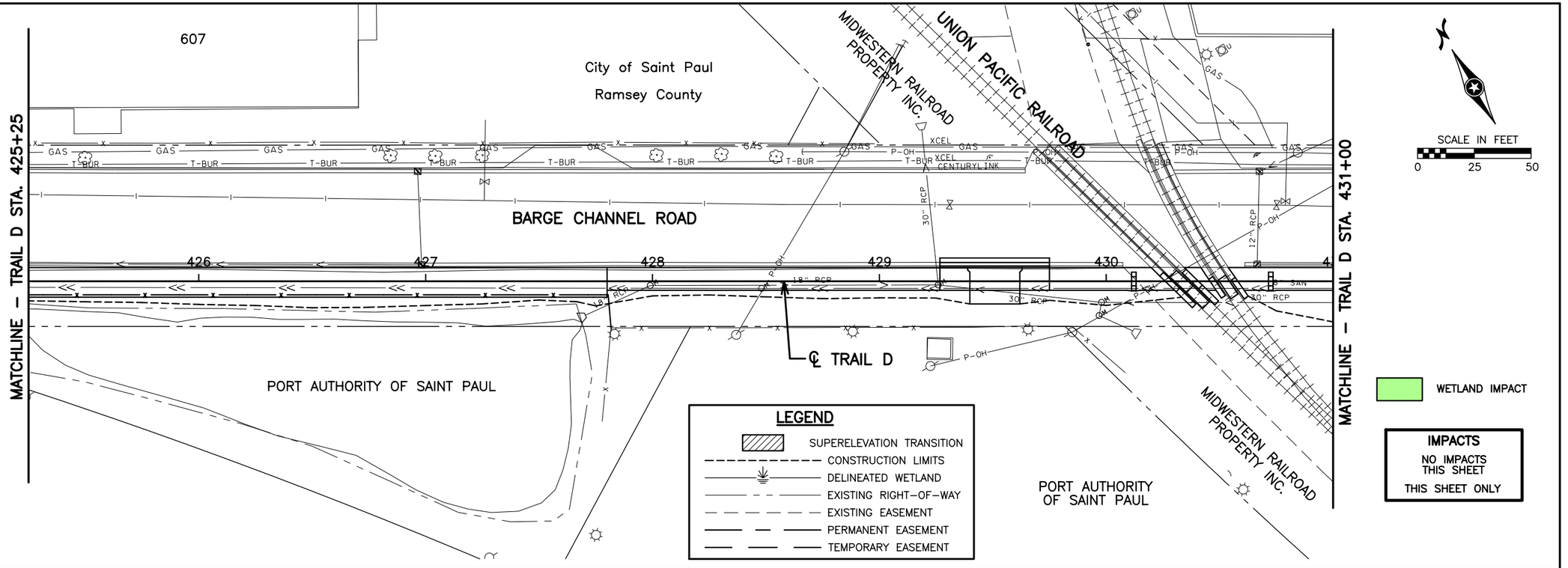

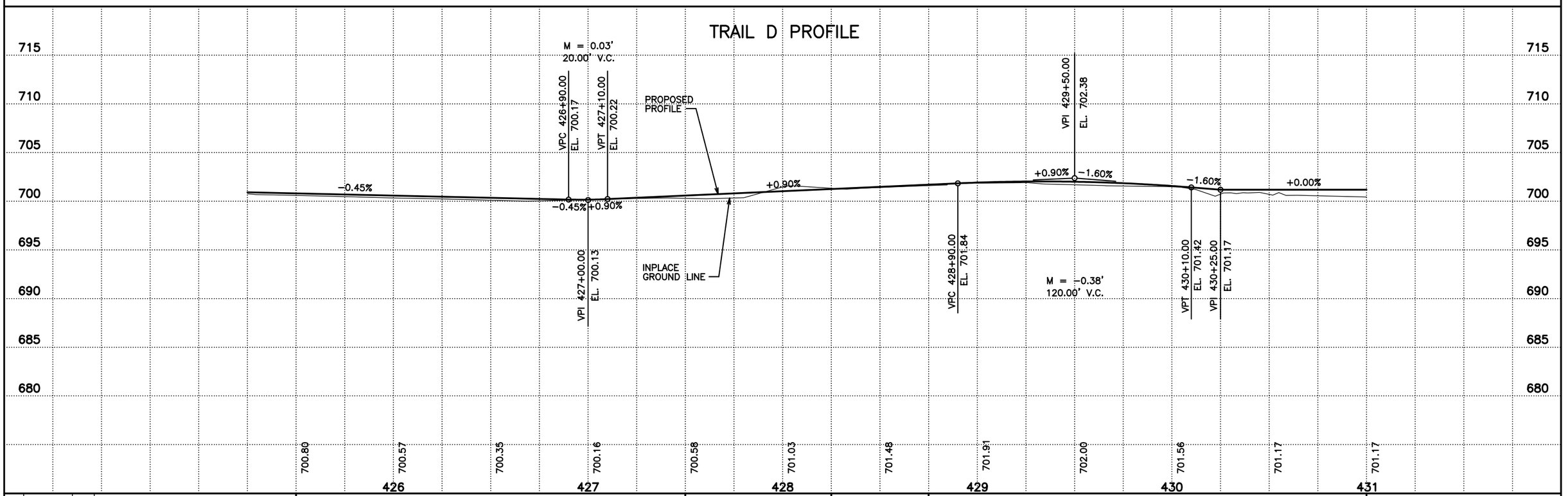

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NO.	DATE	BY	DESCRIPTION OF REVISIONS

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DATE: _____ LIC. NO. _____

TKDA

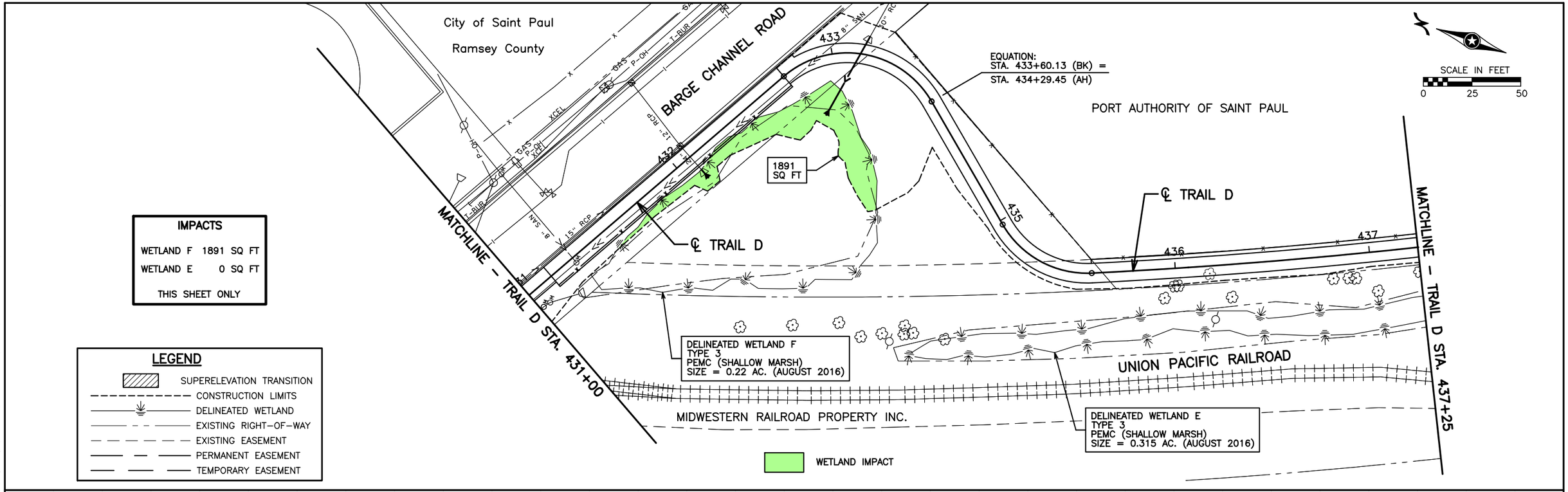
ROBERT PIRAM
REGIONAL TRAIL

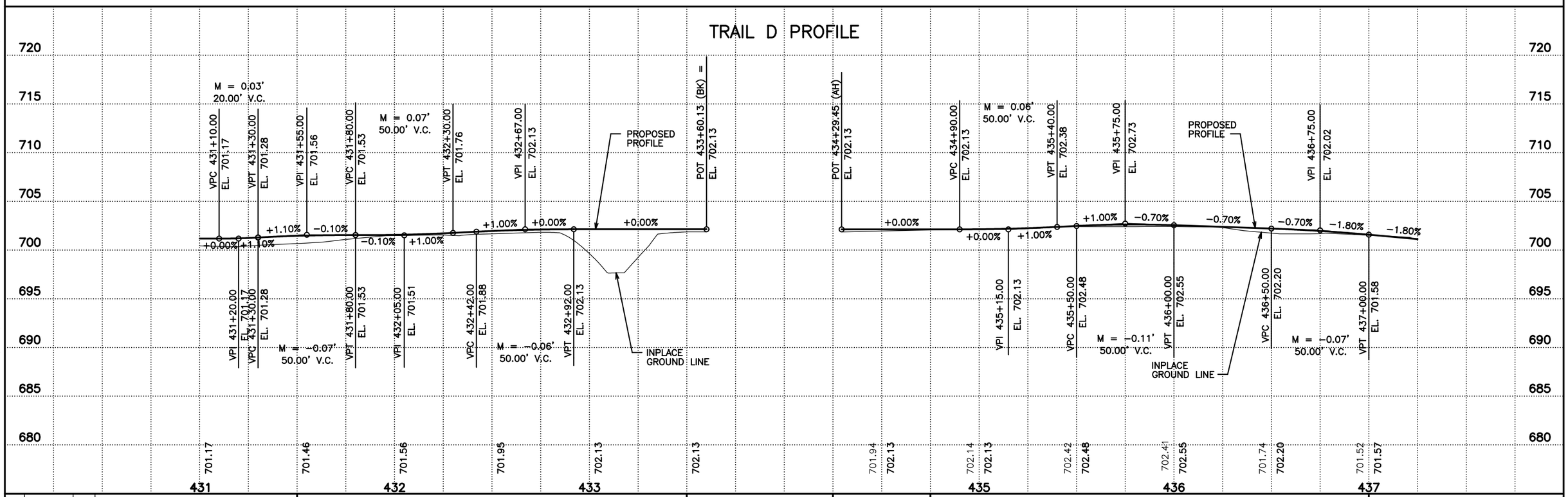
WETLAND IMPACTS

TRAIL D STA. 425+25 TO STA. 431+00

S.P. 164–090–014

SHEET NO. **W8** OF **W28**





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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

CONSTRUCTION PLAN & PROFILE

TRAIL D STA. 431+00 TO STA. 437+25

S.P. 164–090–014

SHEET NO. W9 OF W28

DATE: 12/12/2017 TIME: 7:55:56 AM
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City of Saint Paul

Ramsey County

PORT AUTHORITY OF SAINT PAUL

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

IMPACTS

WETLAND E 24 SQ FT

THIS SHEET ONLY

SCALE IN FEET

0 25 50

MATCHLINE – TRAIL D STA. 437+25

DELINEATED WETLAND E
TYPE 3
PEMC (SHALLOW MARSH)
SIZE = 0.265 AC. (AUGUST 2016)

℄ TRAIL D

24 SQ FT

DELINEATED WETLAND E
TYPE 3
PEMC (SHALLOW MARSH)
SIZE = 0.315 AC. (AUGUST 2016)

END TRAIL D
STA. 444+08.79 =
BEGIN TRAIL E
STA. 509+99.12

Ramsey County/City of Saint Paul

Dakota County/City of South St. Paul

UNION PACIFIC RAILROAD

UNION PACIFIC RAILROAD

WETLAND IMPACT

TRAIL D PROFILE

VPC 437+35.00 EL. 700.94
M = 0.06' 50.00' V.C.
VPI 437+60.00 EL. 700.50
VPT 437+85.00 EL. 700.27
VPC 438+65.00 EL. 699.55
M = 0.06' 50.00' V.C.
VPI 438+90.00 EL. 699.33
VPT 439+15.00 EL. 699.33
VPC 439+25.00 EL. 699.33
VPI 439+50.00 EL. 699.33
M = -0.08' 50.00' V.C.
VPC 439+75.00 EL. 699.03
M = 0.09' 50.00' V.C.
VPT 439+75.00 EL. 699.03
VPI 440+00.00 EL. 698.73
VPT 440+25.00 EL. 698.78
PROPOSED PROFILE
INPLACE GROUND LINE
VPC 440+95.00 EL. 698.92
M = 0.02' 50.00' V.C.
VPI 441+20.00 EL. 698.97
VPT 441+45.00 EL. 699.09
VPC 441+75.00 EL. 699.24
M = -0.17' 50.00' V.C.
VPI 442+00.00 EL. 699.37
VPT 442+25.00 EL. 698.79
VPC 442+55.00 EL. 698.10
M = 0.24' 50.00' V.C.
VPI 442+80.00 EL. 697.52
VPT 443+05.00 EL. 697.90
VPI 443+75.00 EL. 698.95
M = 0.02' 15.00' V.C.
VPC 443+67.50 EL. 698.84
VPT 443+82.50 EL. 699.14
VPC 443+92.50 EL. 699.39
M = -0.02' 15.00' V.C.
VPI 444+00.00 EL. 699.58
VPT 444+07.50 EL. 699.68
VPT 444+08.79 EL. 699.70

-1.80% -1.80% -0.90% -0.90% -0.90% +0.00% +0.00% +0.00% -1.20% -1.20% +0.20% +0.20% +0.20% +0.50% +0.50% +0.50% -2.30% -2.30% -2.30% +1.50% +1.50% +1.50% +2.50% +2.50% +1.40%

700.61 700.70 700.03 700.14 699.72 699.69 699.31 699.35 699.14 699.25 698.61 698.81 698.36 698.83 698.29 698.93 698.43 699.12 698.41 699.19 697.89 698.22 697.80 697.83 698.82 698.57 699.56 699.55

720 715 710 705 700 695 690 685 680

438 439 440 441 442 443 444

DATE: 12/12/2017 TIME: 7:55:58 AM
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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

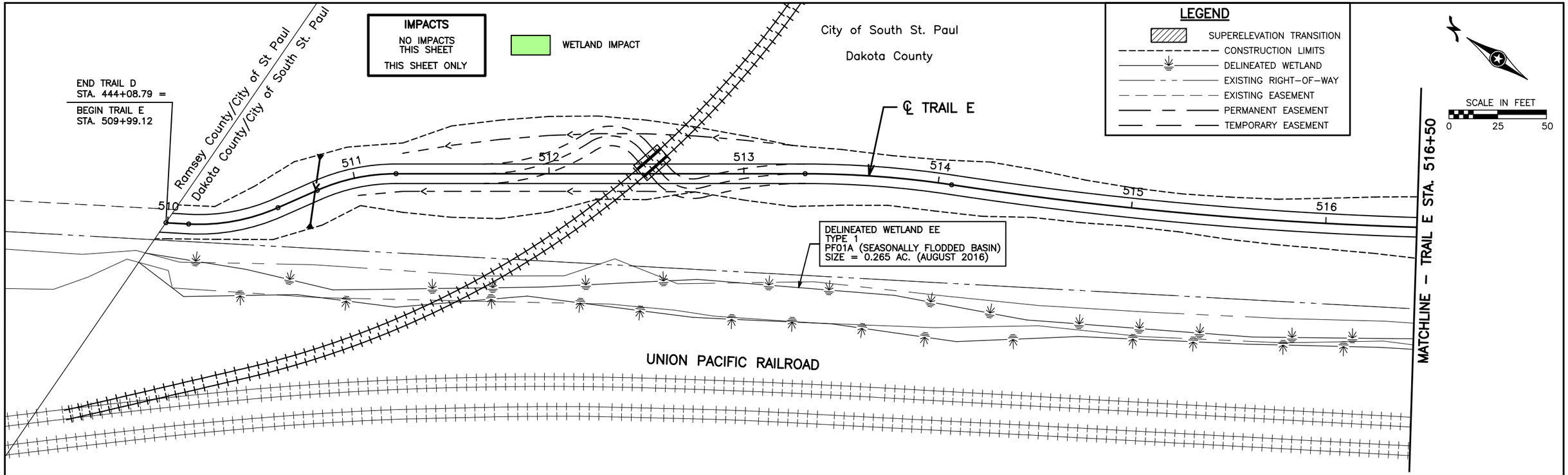
ROBERT PIRAM
REGIONAL TRAIL

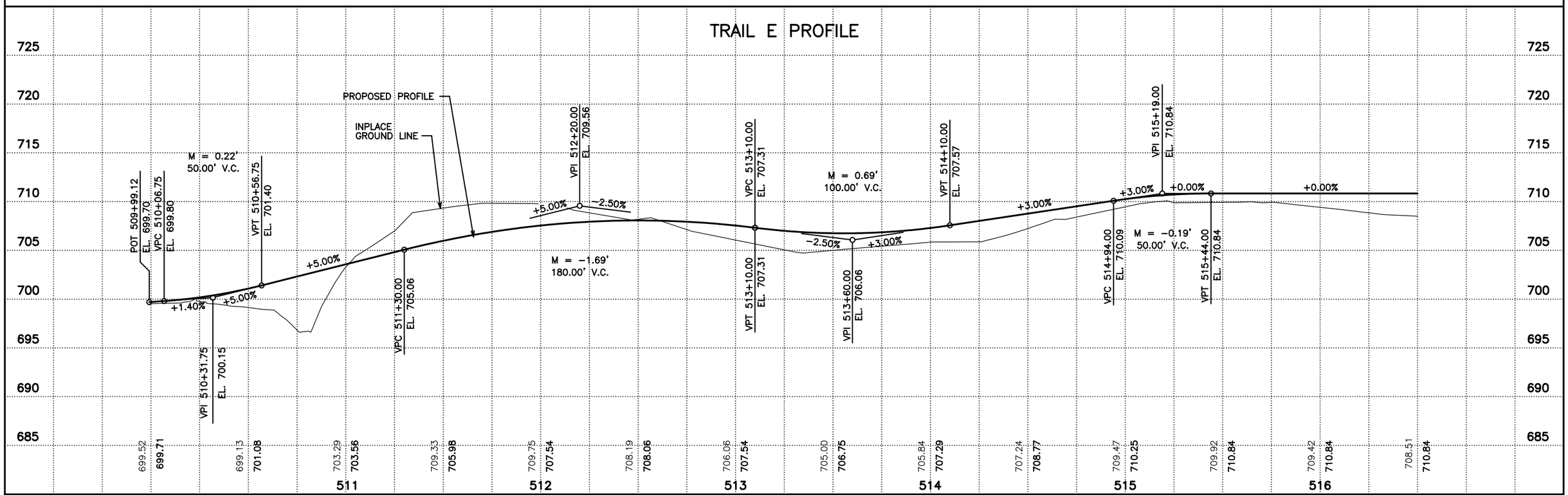
WETLAND IMPACTS

TRAIL D STA. 437+25 TO STA. 444+08.79

S.P. 164-090-014

SHEET NO. W10 OF W28





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

WETLAND IMPACTS

TRAIL E STA. 509+99.12 TO STA. 516+50

S.P. 164-090-014

SHEET NO. **W11** OF **W28**

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City of South St. Paul
Dakota County

TRAIL E PROFILE

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: ______
DATE: ______ LIC. NO. ______

TKDA

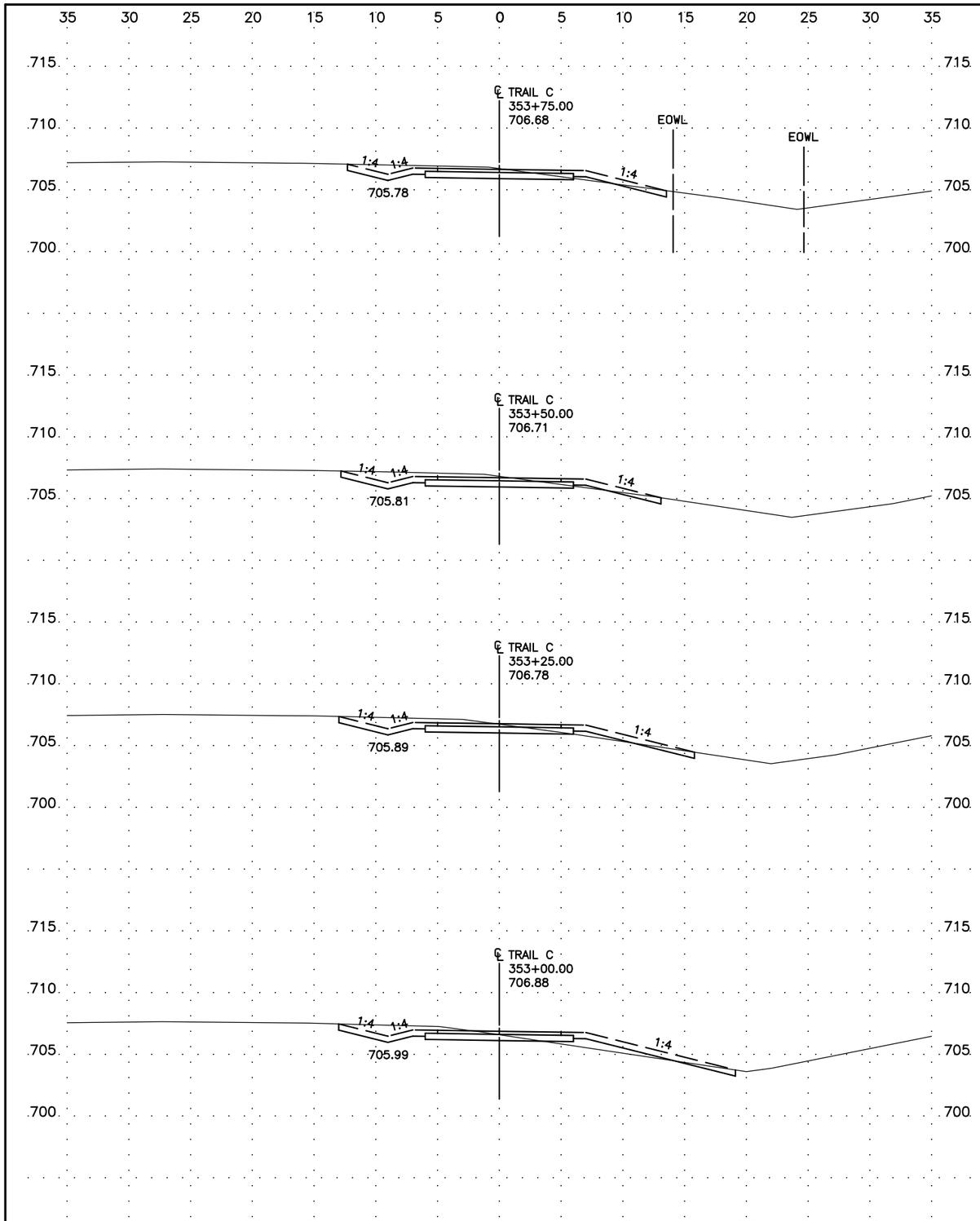
ROBERT PIRAM
REGIONAL TRAIL

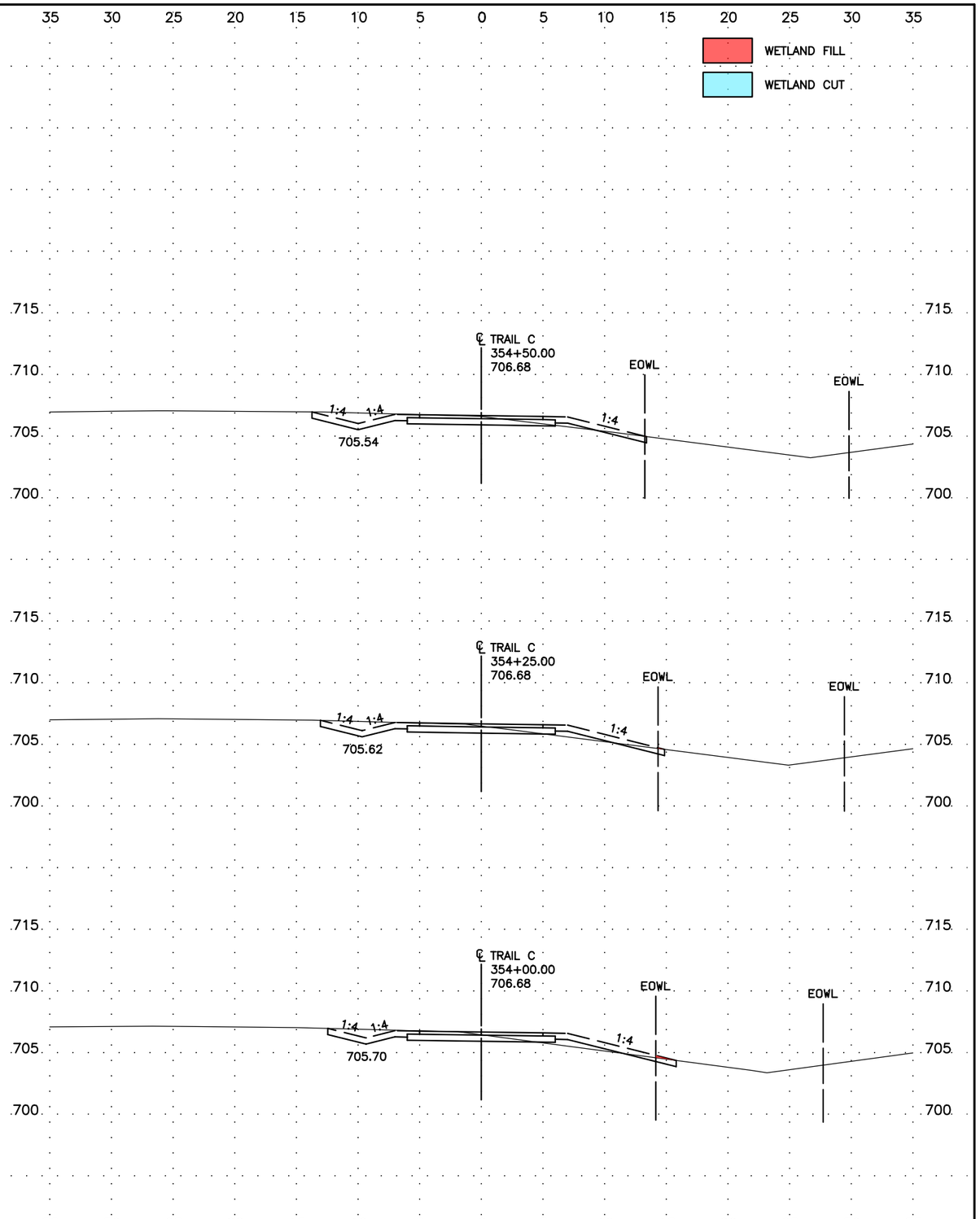
WETLAND IMPACTS

TRAIL E STA. 516+50 TO STA. 523+50

S.P. 164-090-014

SHEET NO. W12 OF W28





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

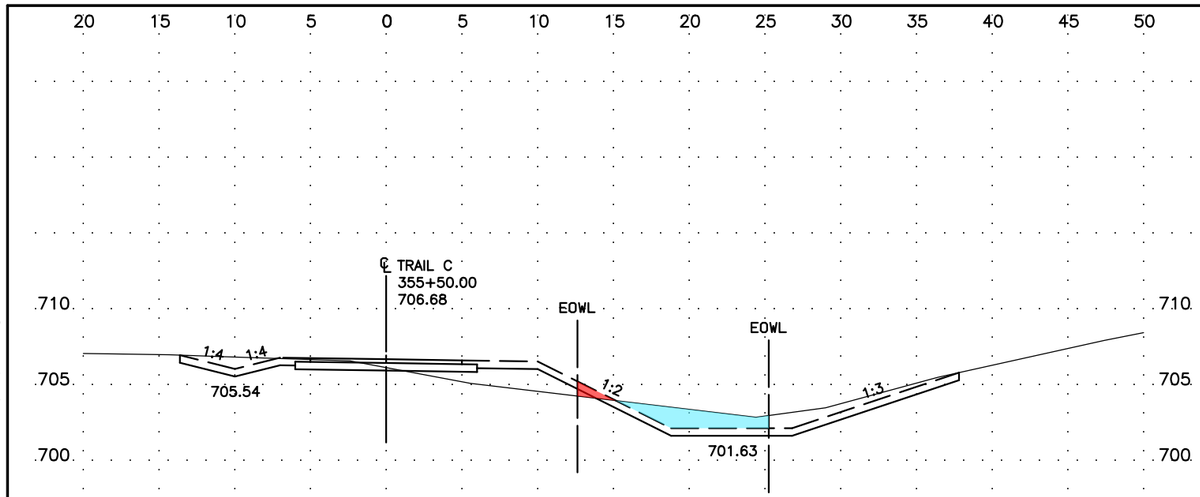
ROBERT PIRAM
REGIONAL TRAIL

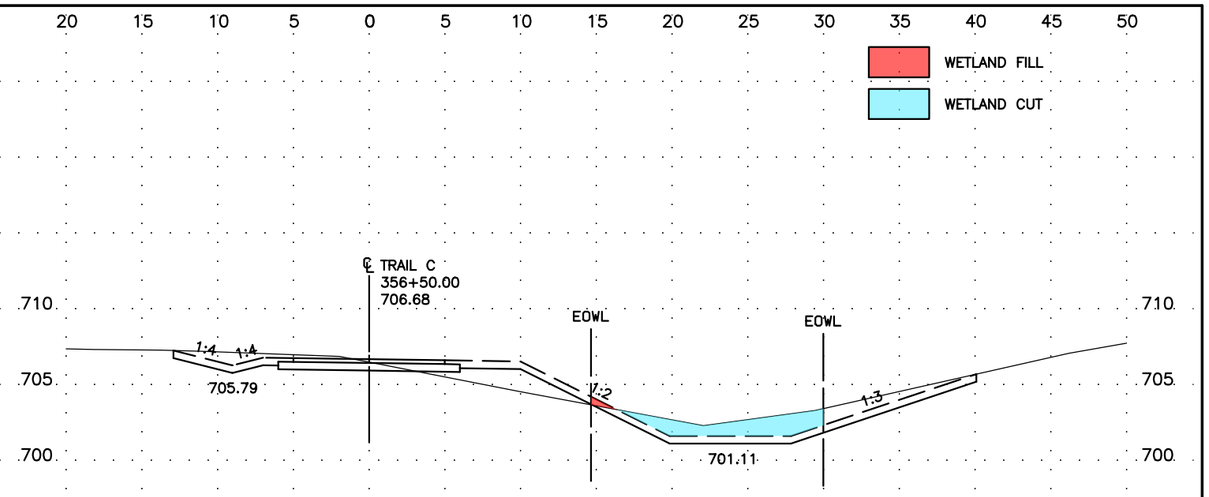
CROSS SECTIONS

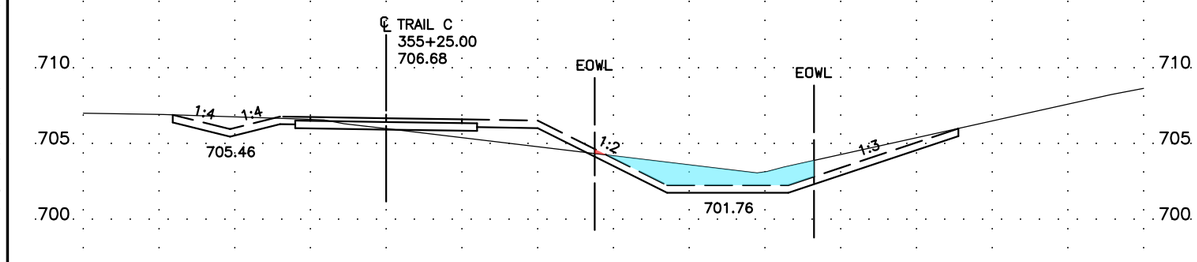
TRAIL C STA. 353+00 TO STA. 354+50

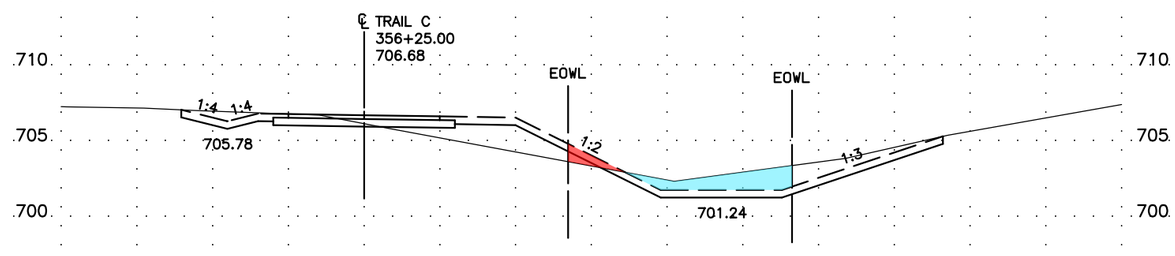
S.P. 164-090-014

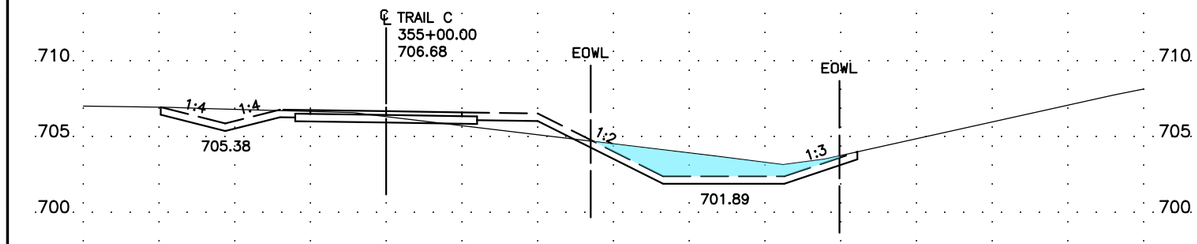
SHEET NO. **W13** OF **W28**

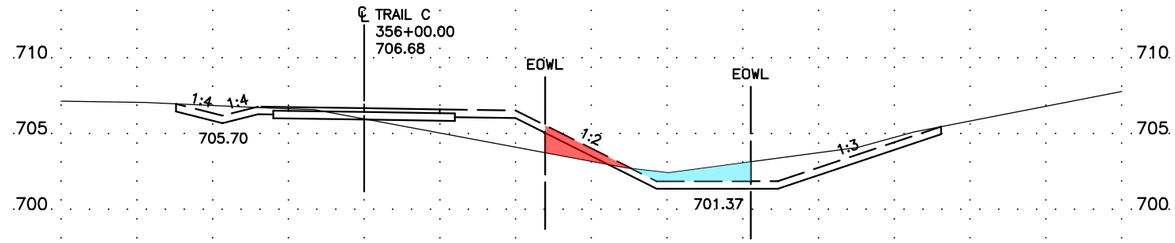


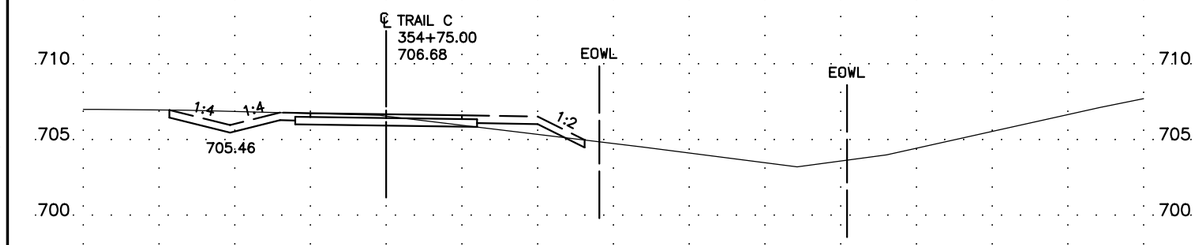


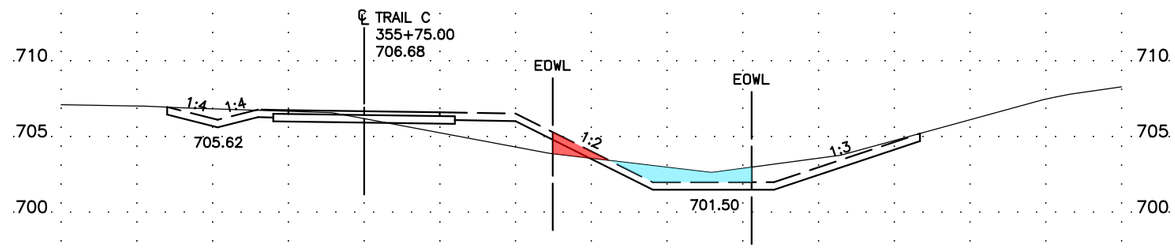












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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

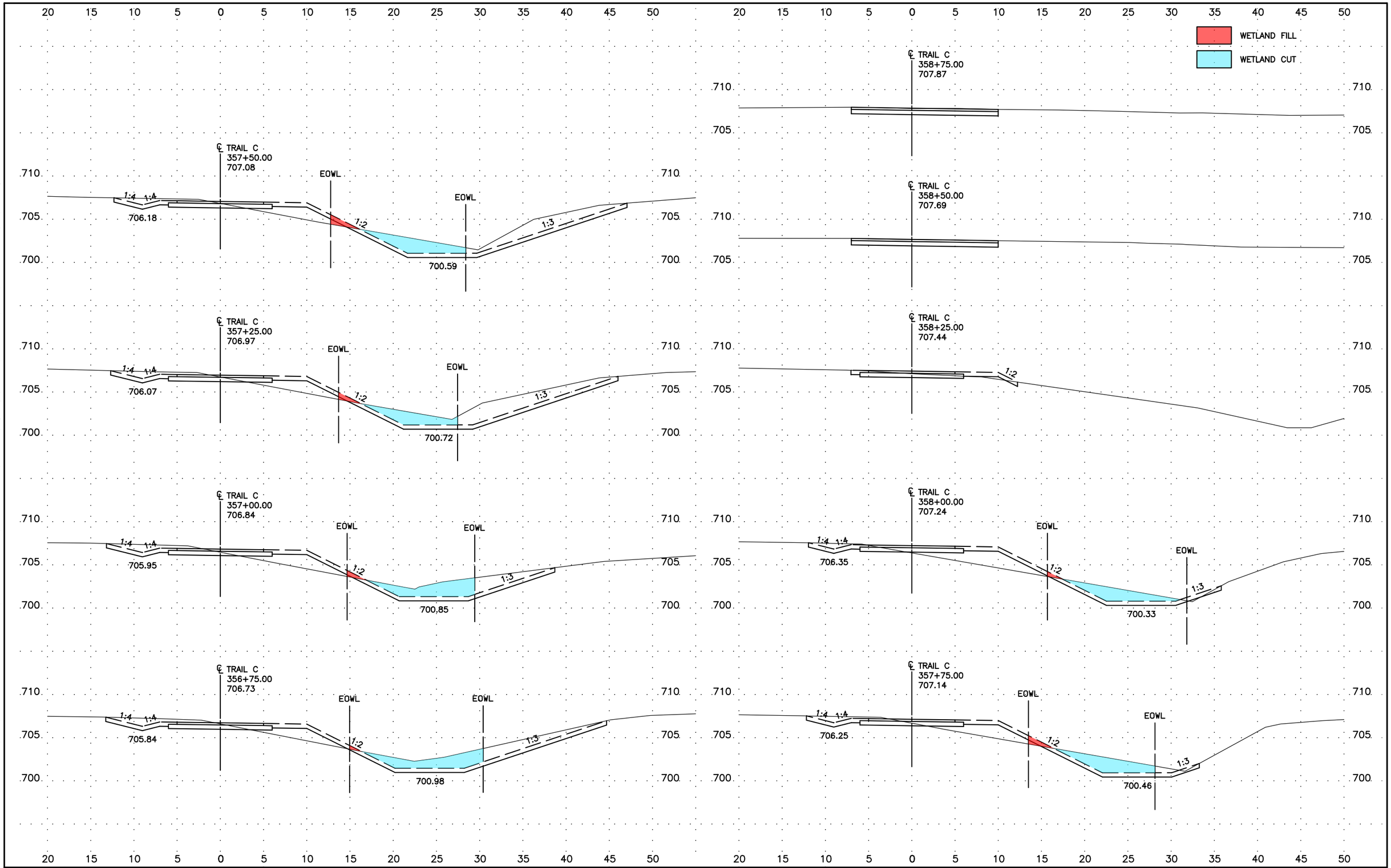
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 354+75 TO STA. 356+50

S.P. 164-090-014

SHEET NO. **W14** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

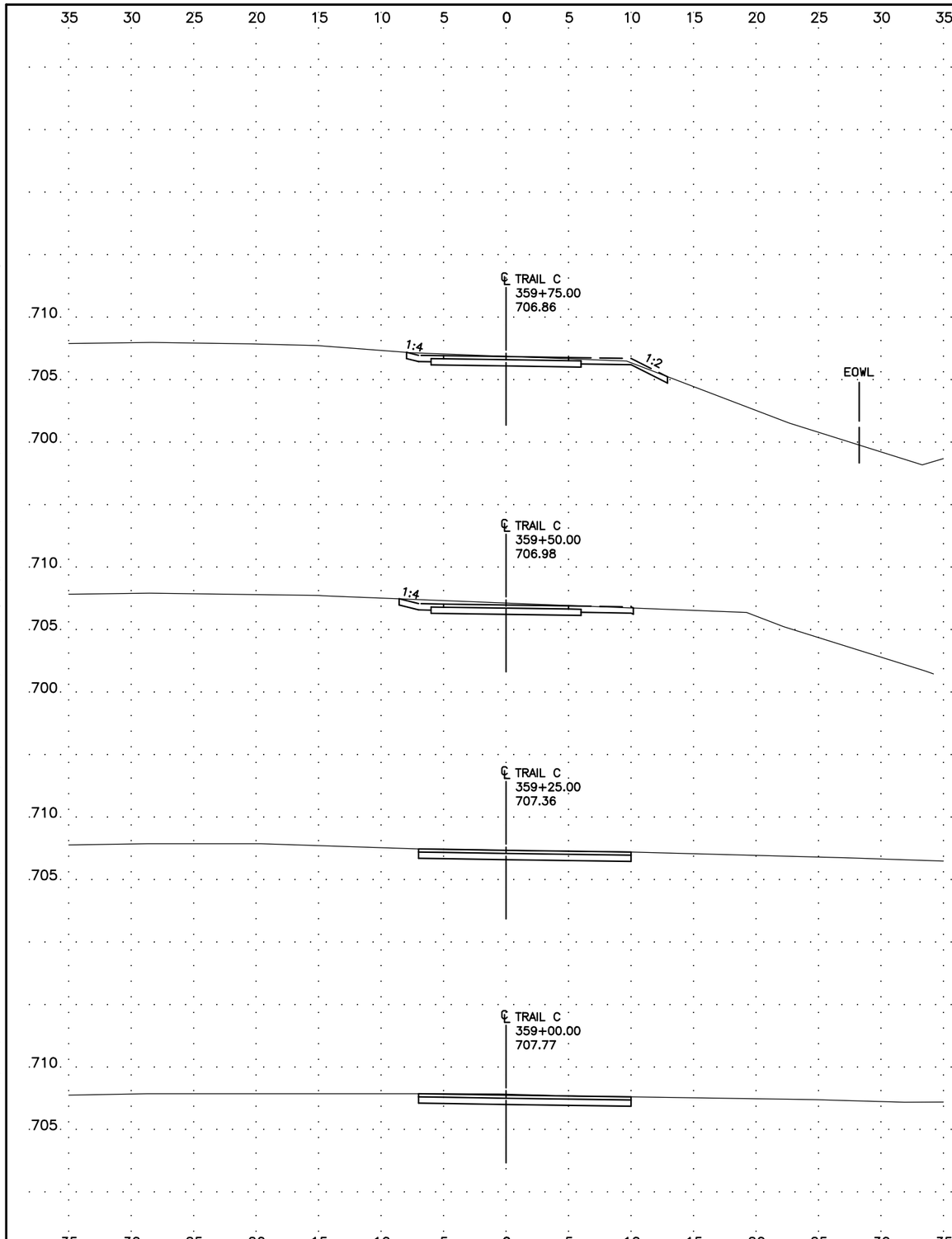
ROBERT PIRAM
REGIONAL TRAIL

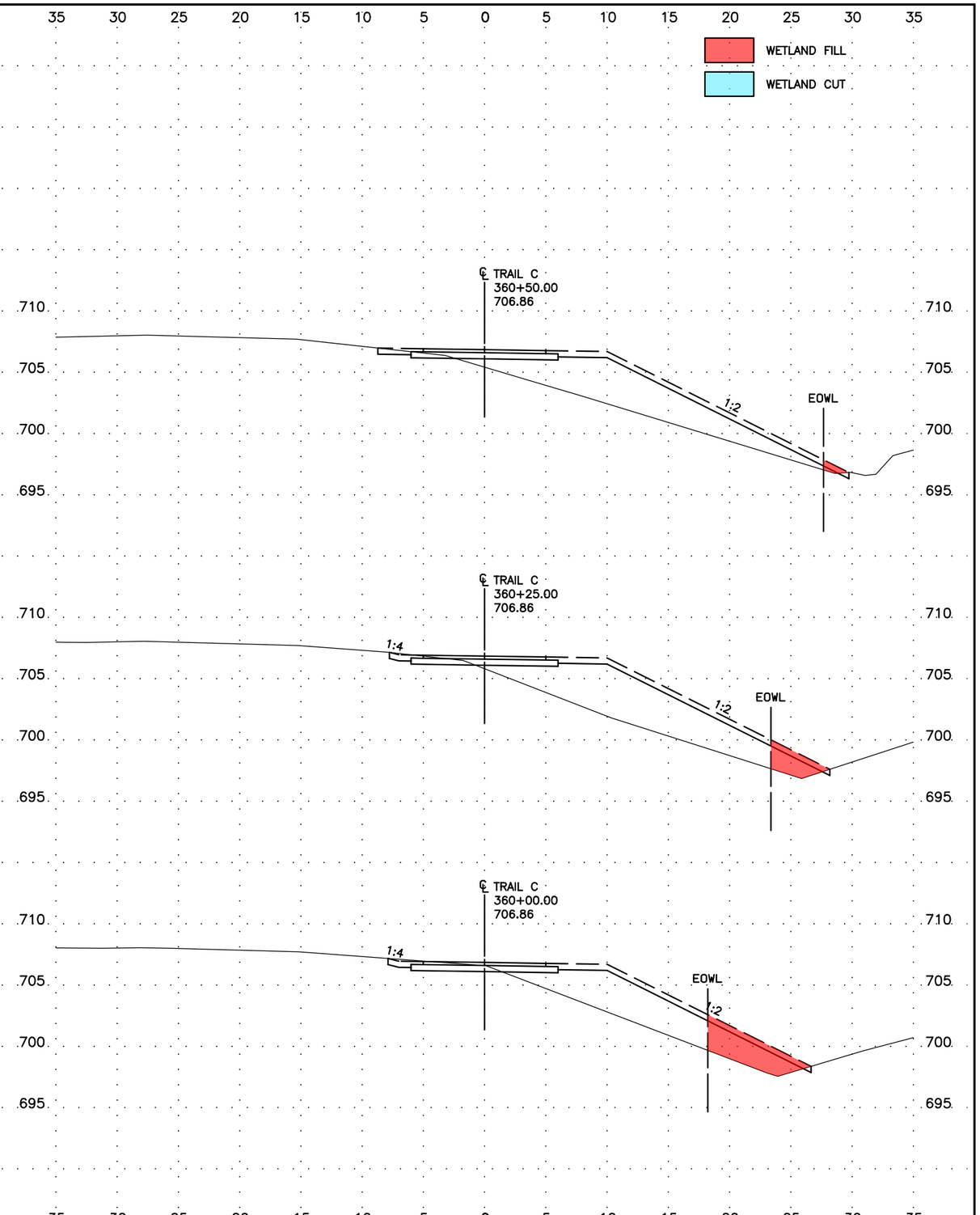
CROSS SECTIONS

TRAIL C STA. 356+75 TO STA. 358+75

S.P. 164-090-014

SHEET NO. **W15** OF **W28**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

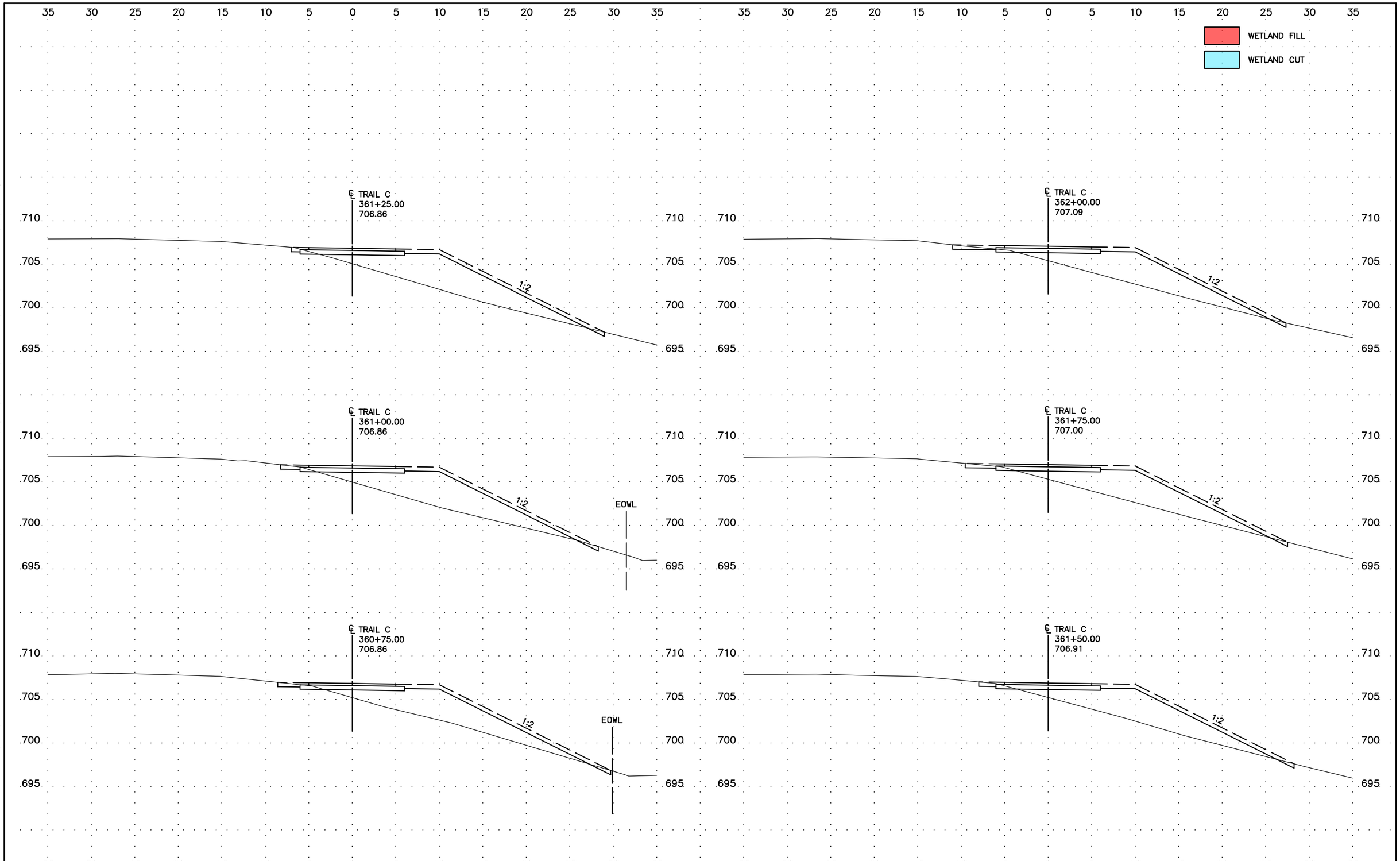
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 359+00 TO STA. 360+50

S.P. 164-090-014

SHEET NO. **W16** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

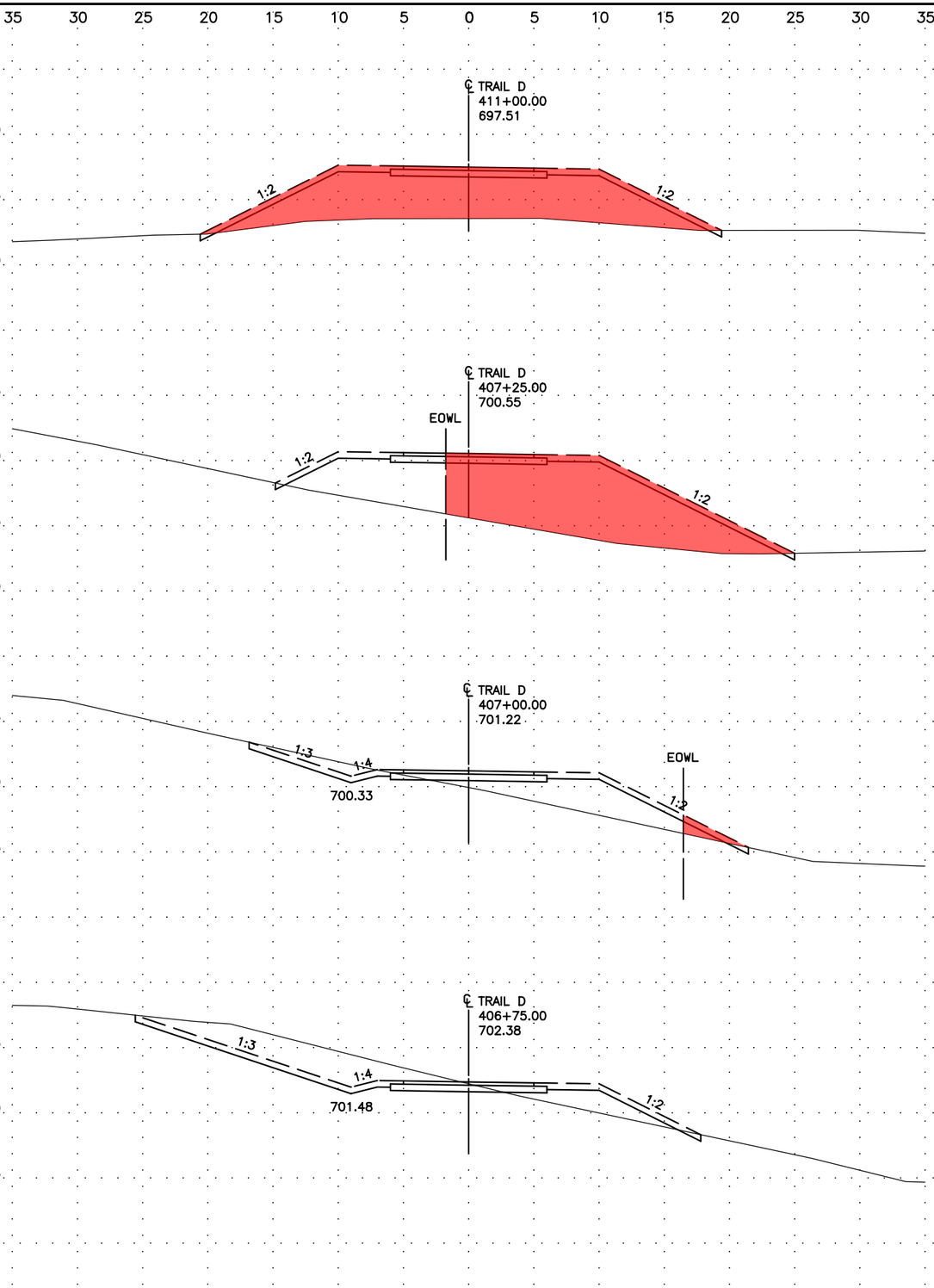
ROBERT PIRAM
REGIONAL TRAIL

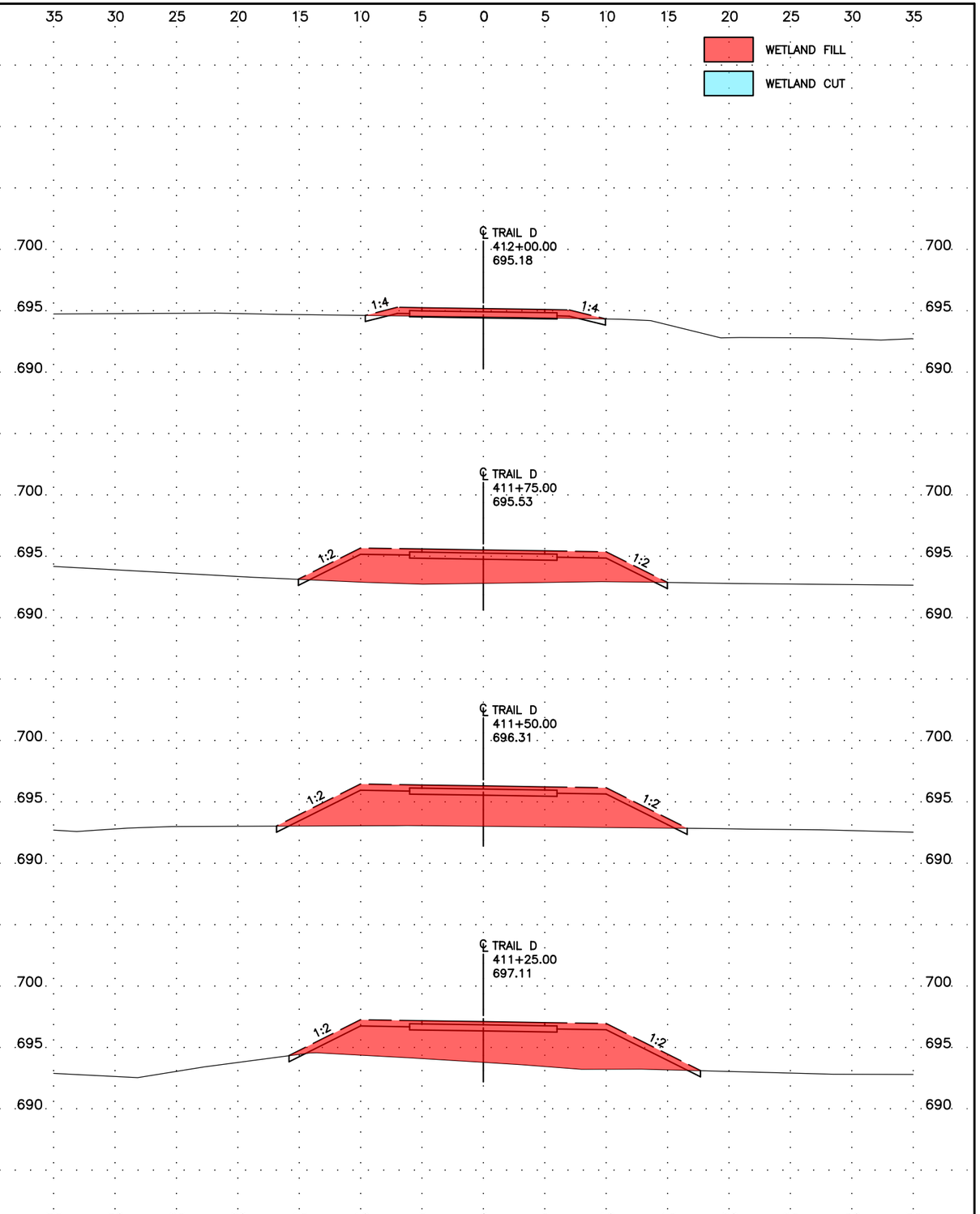
CROSS SECTIONS

TRAIL C STA. 360+75 TO STA. 362+00

S.P. 164-090-014

SHEET NO. **W17** OF **W28**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

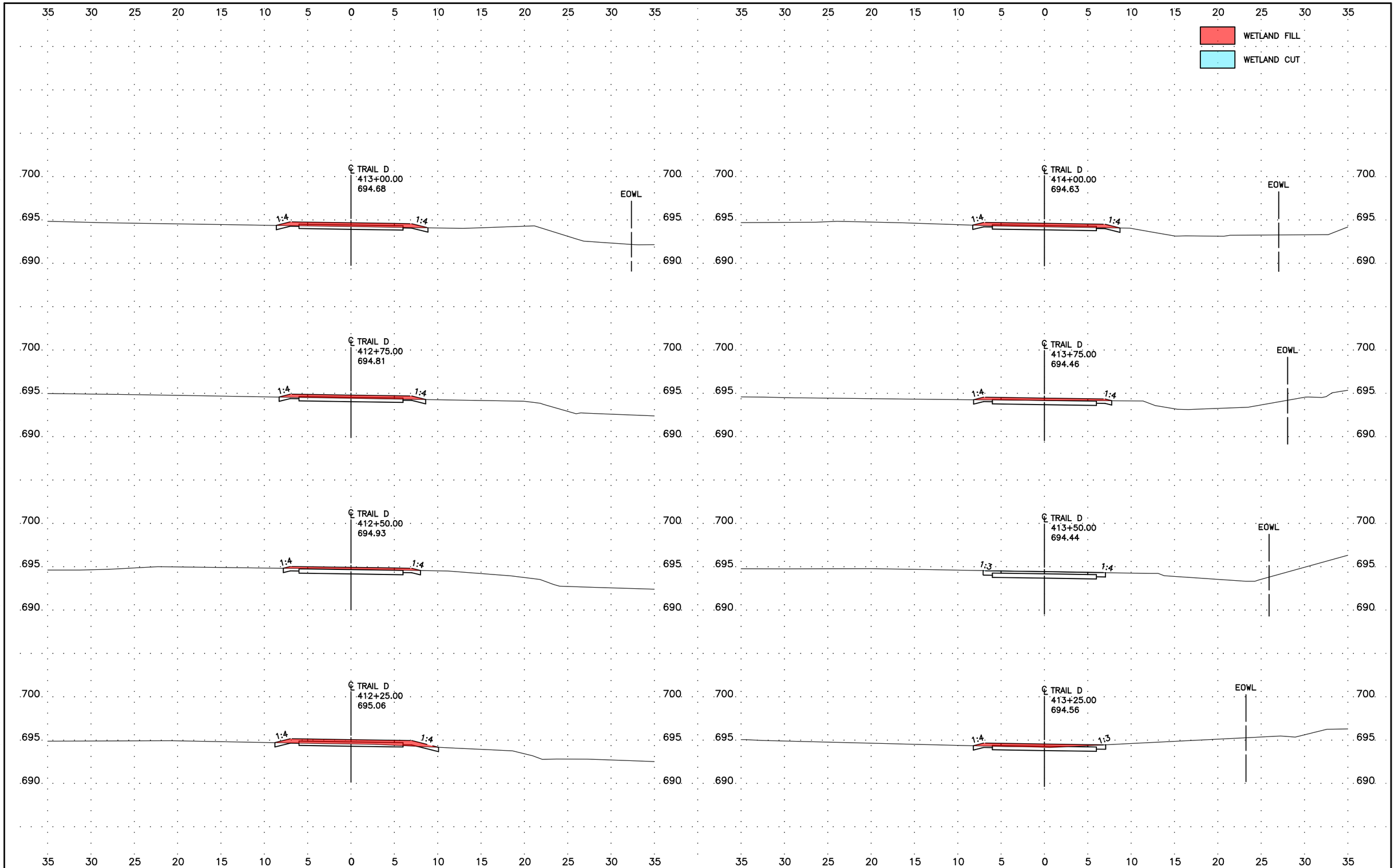
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 406+75 TO STA. 412+00

S.P. 164-090-014

SHEET NO. **W18** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

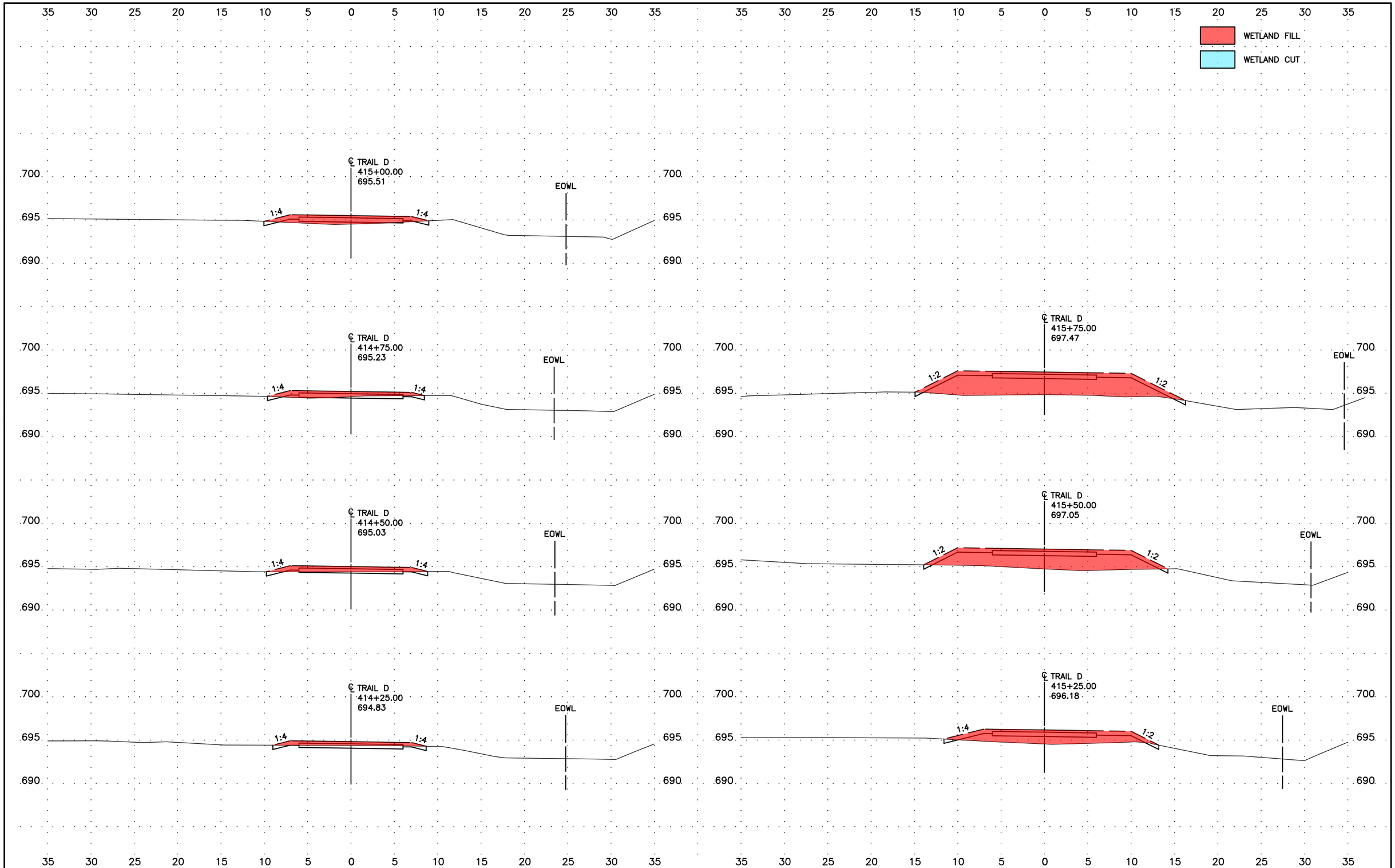
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 412+25 TO STA. 414+00

S.P. 164-090-014

SHEET NO. **W19** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

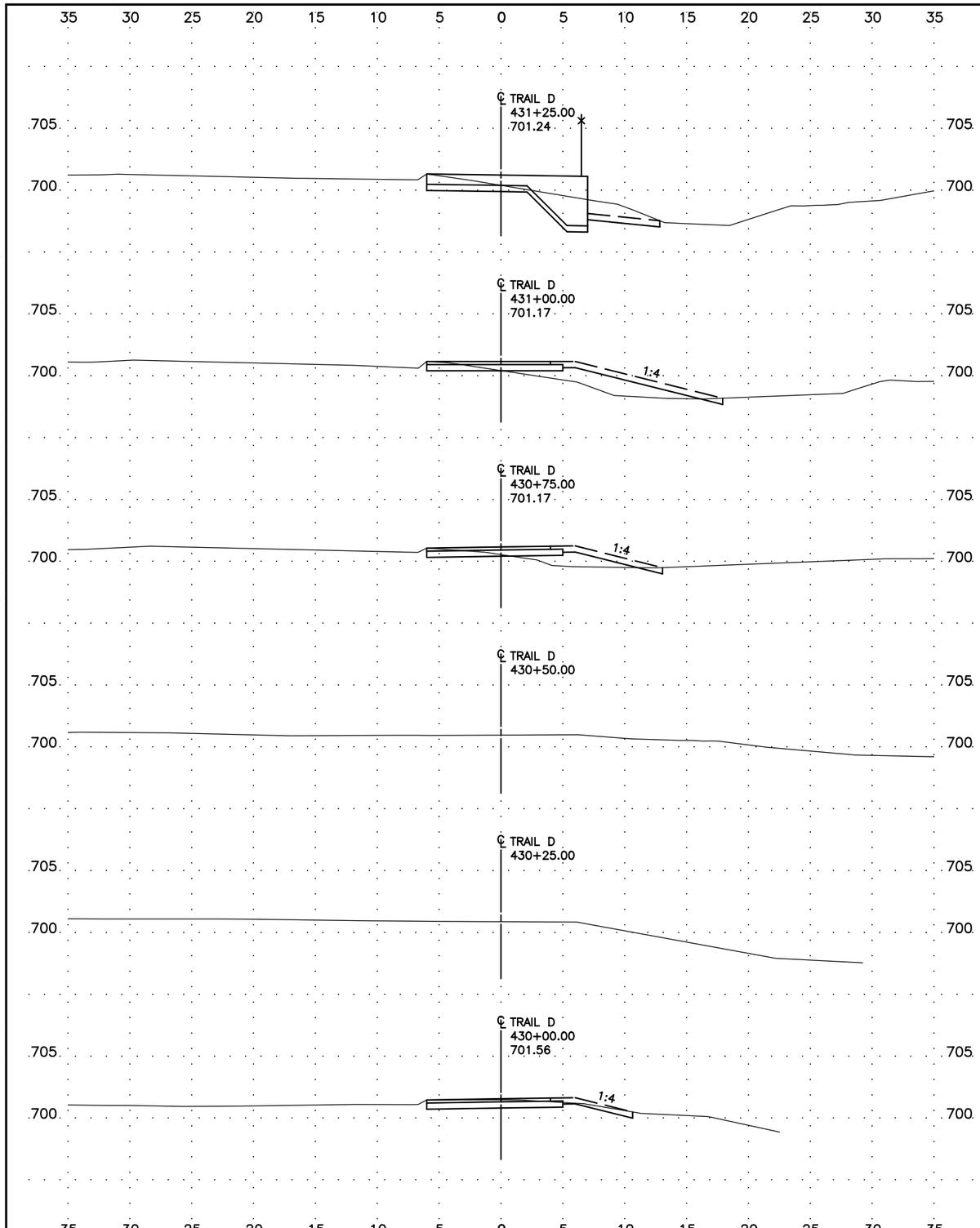
ROBERT PIRAM
REGIONAL TRAIL

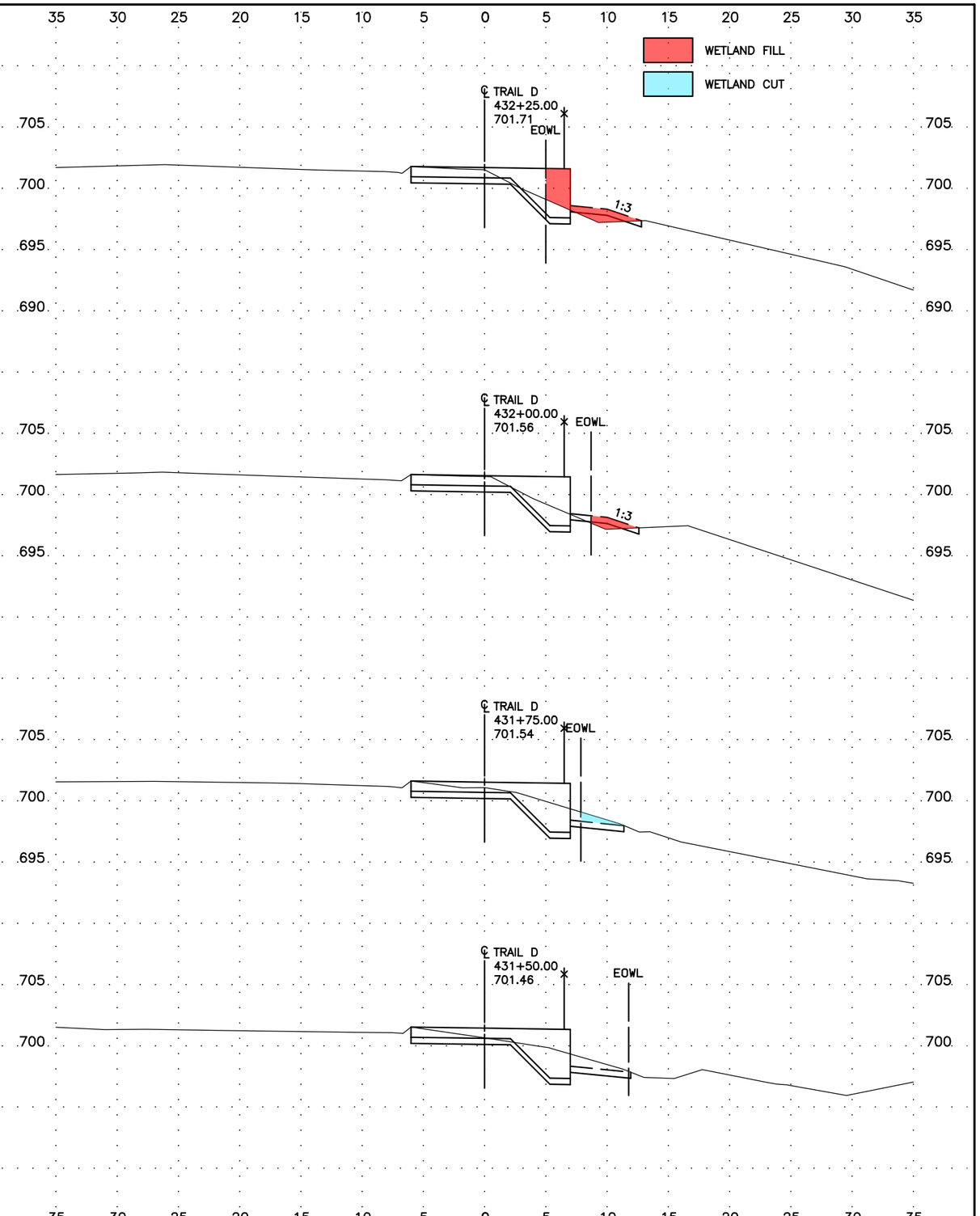
CROSS SECTIONS

TRAIL D STA. 414+25 TO STA. 415+75

S.P. 164-090-014

SHEET NO. **W20** OF **W28**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

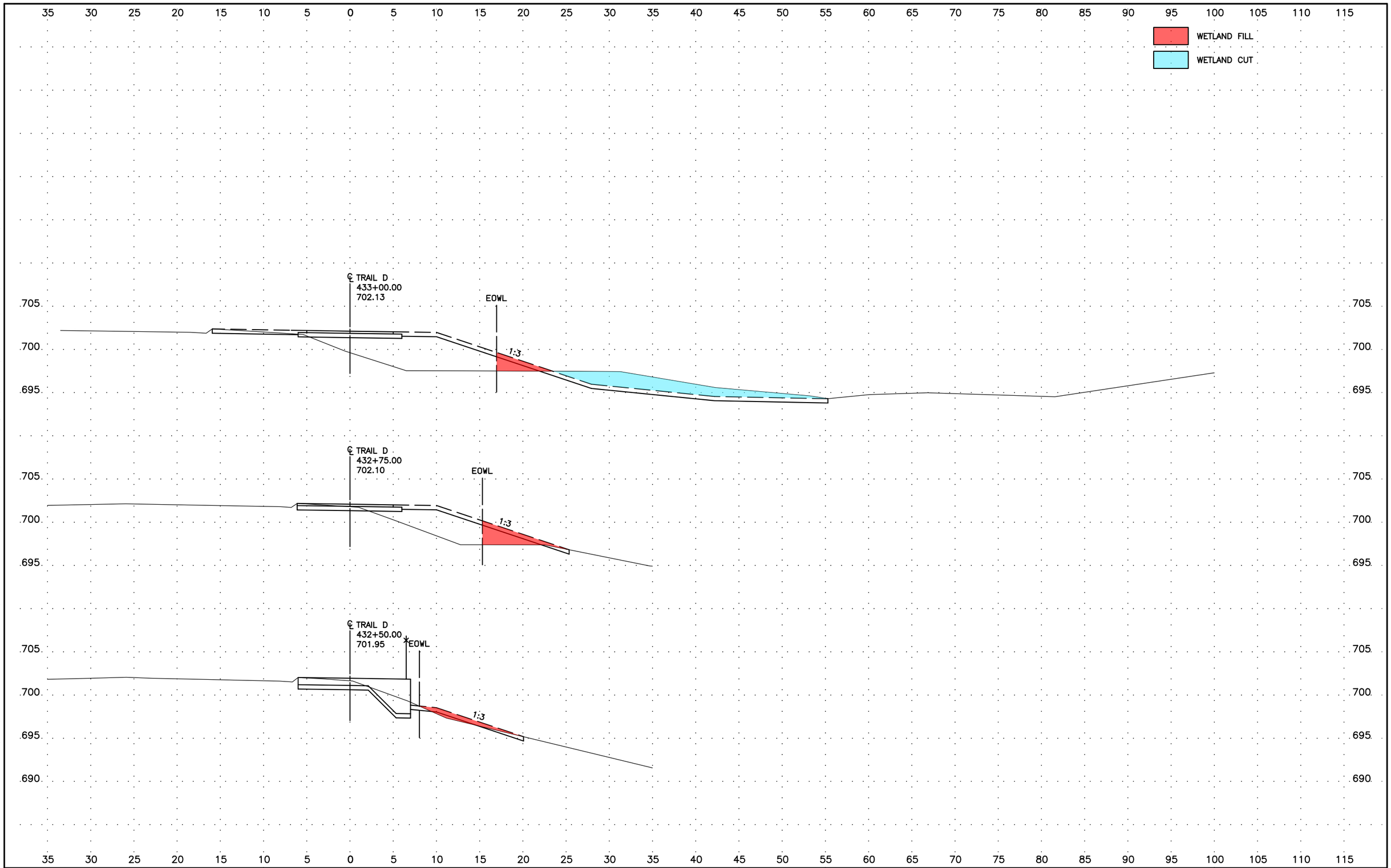
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 430+00 TO STA. 432+25

S.P. 164-090-014

SHEET NO. **W21** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

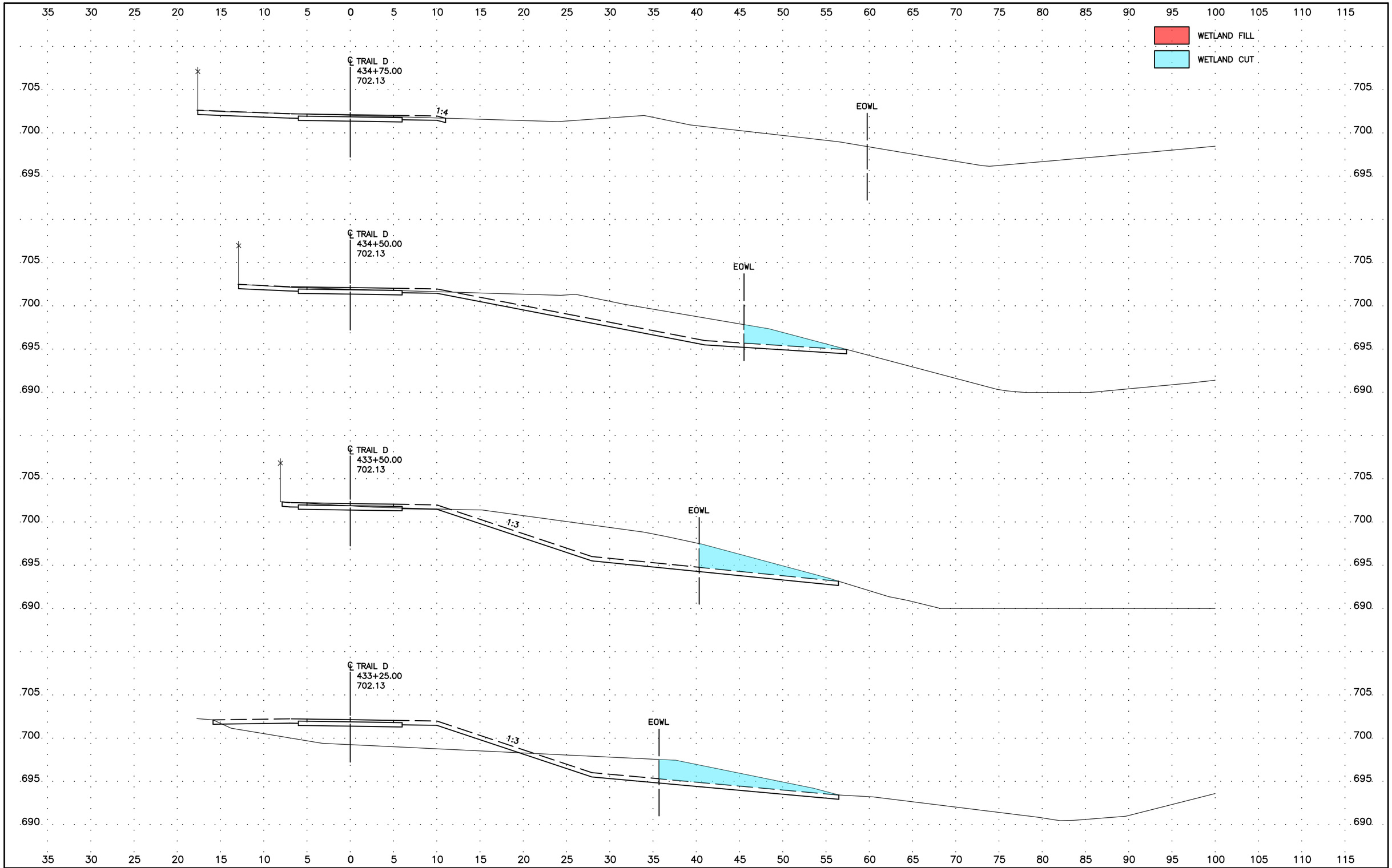
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 432+50 TO STA. 433+00

S.P. 164-090-014

SHEET NO. **W22** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

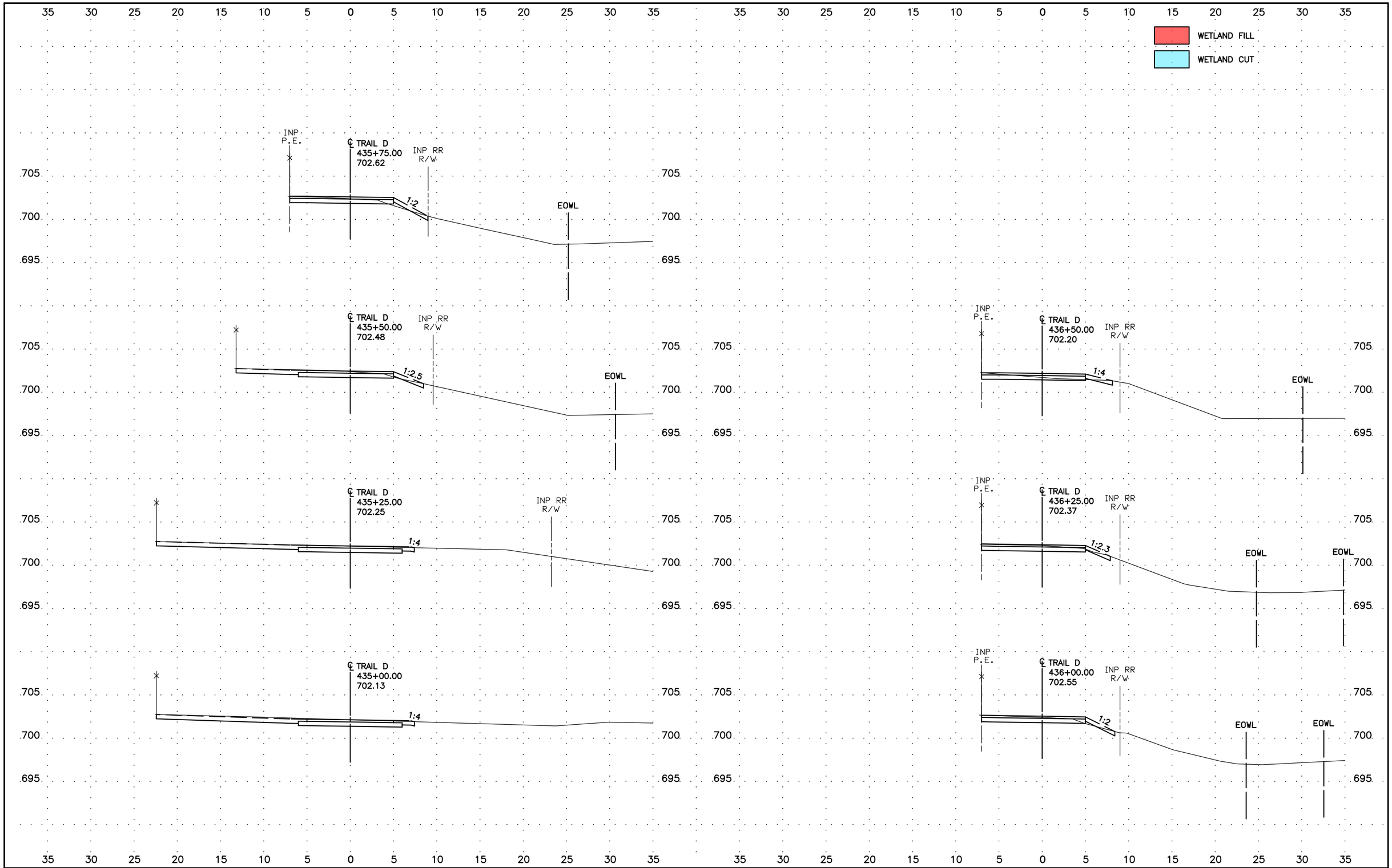
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 433+25 TO STA. 434+75

S.P. 164-090-014

SHEET NO. **W23** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

ROBERT PIRAM
REGIONAL TRAIL

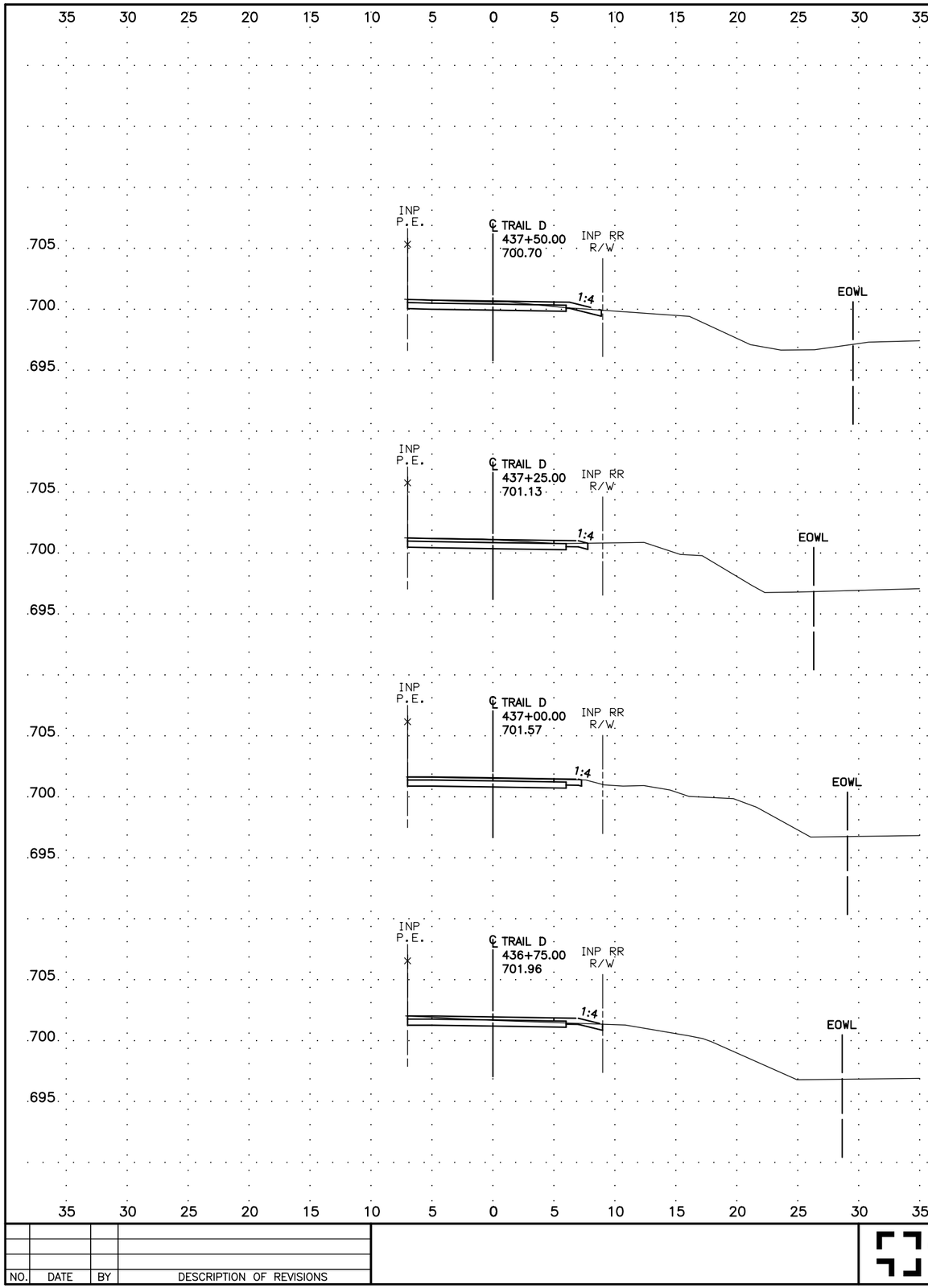
CROSS SECTIONS

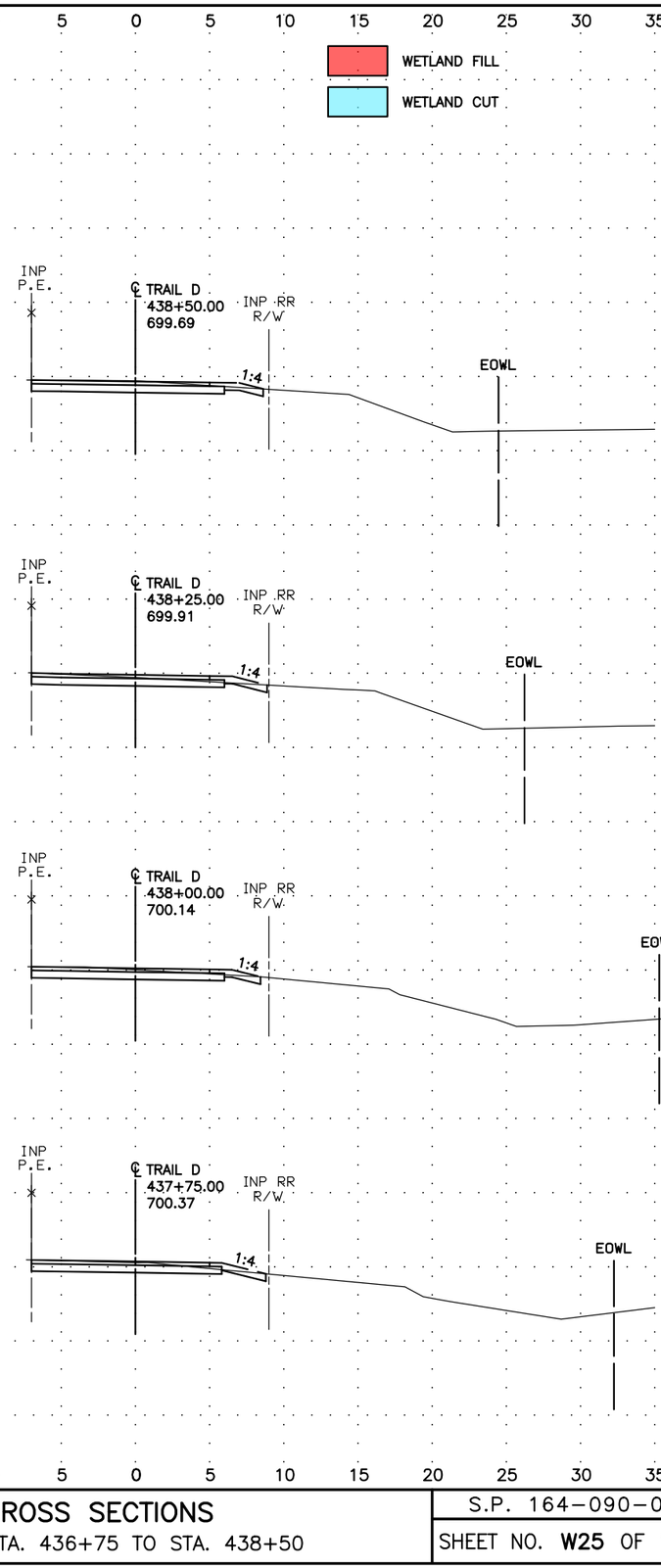
TRAIL D STA. 435+00 TO STA. 436+50

S.P. 164-090-014

SHEET NO. **W24** OF **W28**

WETLAND FILL
WETLAND CUT





NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

ROBERT PIRAM
REGIONAL TRAIL

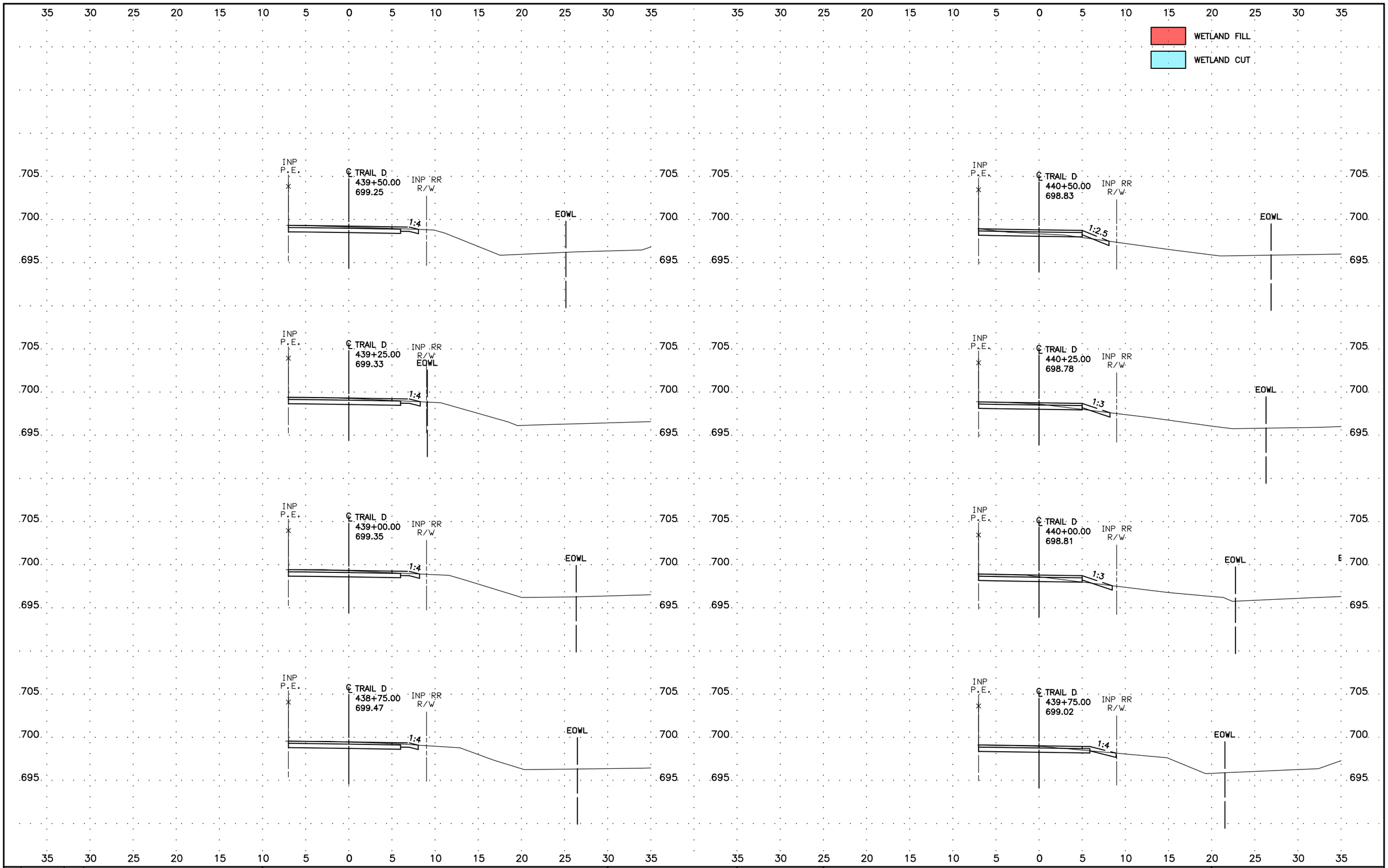
CROSS SECTIONS

TRAIL D STA. 436+75 TO STA. 438+50

S.P. 164-090-014

SHEET NO. **W25** OF **W28**

WETLAND FILL
WETLAND CUT



NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

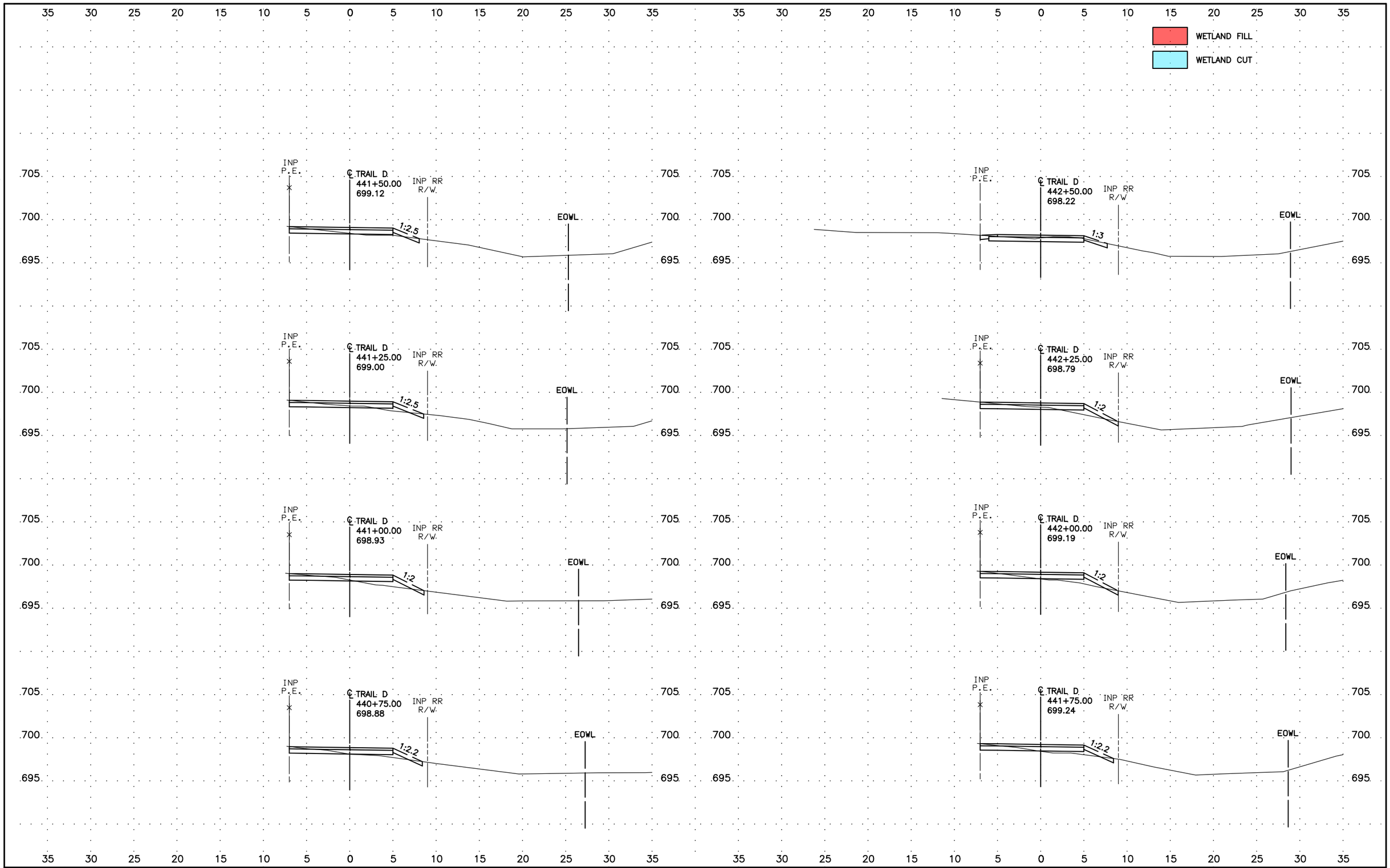
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 438+75 TO STA. 440+50

S.P. 164-090-014

SHEET NO. **W26** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

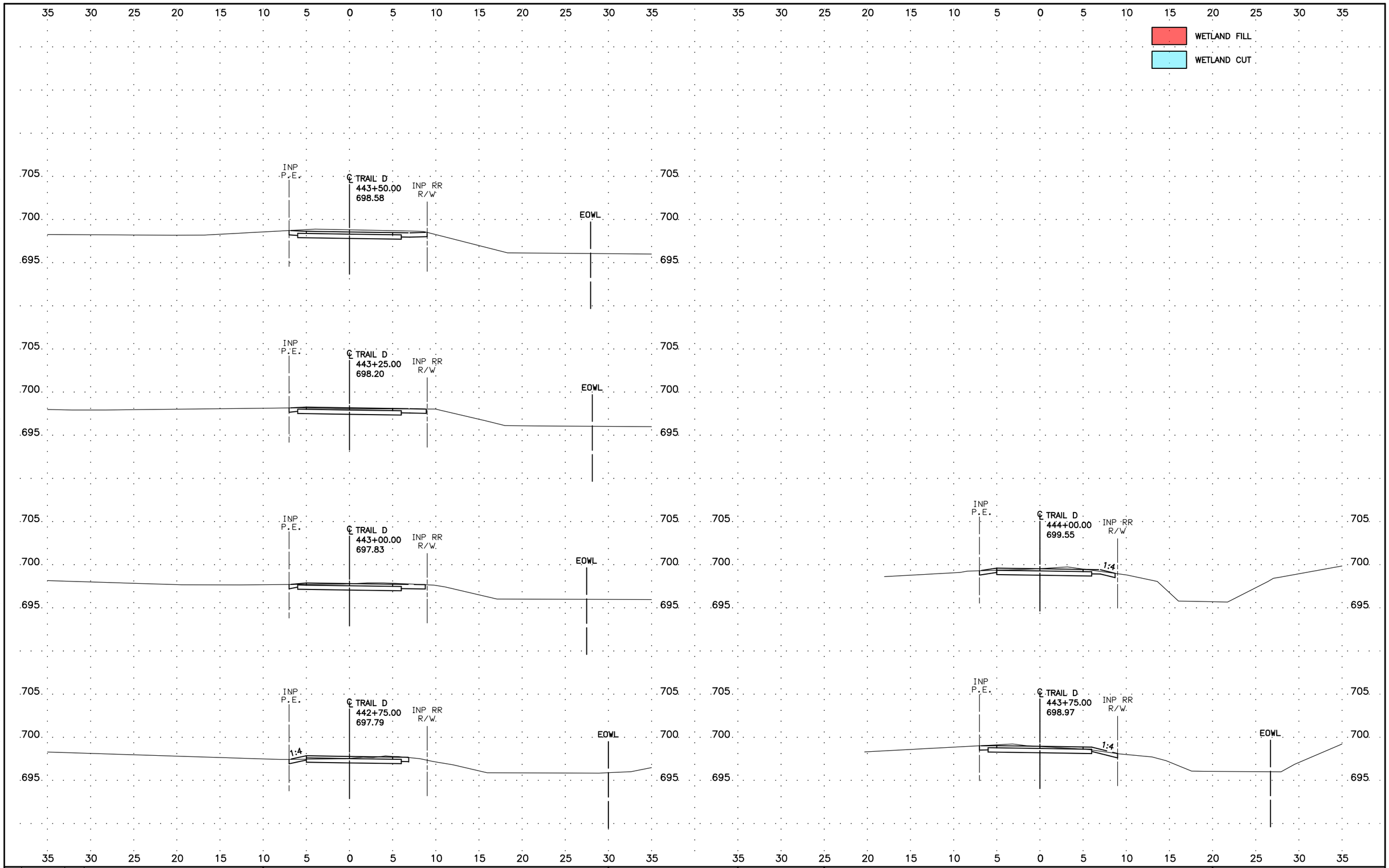
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 440+75 TO STA. 442+50

S.P. 164-090-014

SHEET NO. **W27** OF **W28**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 442+75 TO STA. 444+00

S.P. 164-090-014

SHEET NO. **W28** OF **W28**

FLOODPLAIN ASSESSMENT
Robert Piram Regional Trail

The project consists of constructing an off-road, multi-use trail beginning at Big Rivers Regional Trail trailhead in Lilydale and ending at Kaposia Landing Park in South Saint Paul for a total length of approximately 3.8 miles. Two boardwalk structures and a bridge over the Union Pacific tracks are proposed near Kaposia Landing Park.

The National Flood Insurance Program Flood Insurance Rate Maps (FIRMs) for Dakota County and Ramsey County, Minnesota, have been examined for this project. The following four FIRMs contain the project area:

Lily Dale, Dakota County, Map Number 27037C0019E, December 2, 1011
South St. Paul, Dakota County, Map Number 27037C0041E, December 2, 2011
Saint Paul, Ramsey County, Map Number 27123C0104G, June 4, 2010
Saint Paul, Ramsey County, Map Number 27123C0112G, June 4, 2010

The project will encroach upon the Mississippi River's floodplain. The table below and attached maps describe and show the encroachment.

FLOODPLAIN ENCROACHMENT		
Floodplain	**Type of Encroachment**	**Length, ft**
Mississippi River - Lilydale	Longitudinal	**1000**
Mississippi River – St. Paul	Longitudinal	**3000**
Mississippi River – South St. Paul	Longitudinal	**100**

See Floodplain Maps attached for floodplain impact areas.

FLOODPLAIN IMPACT ANALYSIS
This project will not result in any significant floodplain impacts for the following reasons:

1. There is no significant potential for interruption of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route.

    a. The transportation facility being constructed is a bicycle trail and not a roadway used as an emergency route.
2. There is no significant impact on natural and beneficial floodplain values.

    a. Impacts:

	Beneficial Impacts	Adverse Impacts
Fisheries	No fill placed within floodway boundary	None
Wetlands	None	Minor wetland encroachment
Plants	None	None
Open Space/Aesthetics	Native seed mixtures will be used	None
Public Access (boat/canoe)	Not applicable	Not applicable
Channel Changes	Not applicable	Not applicable
Boat Passage	Not applicable	Not applicable
Threatened/Endangered Species	No T&E species have been identified in the floodplain	None
Water Quality	Appropriate turf establishment and erosion control measures will be used	Minor increase in impervious surface

b. Minimization/Mitigation Measures:

The project proposes to place fill within the 100-year floodplain of the Mississippi River. All fill will be placed within the flood fringe portion of the floodplain. No fill will be placed within the designated floodway. The amount of floodplain fill resulting from the project is approximately 4837 cubic yards. The amount of floodplain mitigation resulting from the project is approximately 411 cubic yards. See Floodplain Impact and Mitigation Figures (FP1 – FP47) attached.

3. There is no significant increased risk of flooding.

   a. There is no change in the 100-year flood elevation that would endanger life or property.

   b. There are no special hydraulic features.

4. The project will not support and/or result in incompatible floodplain development.

   Reason(s) why project will not cause incompatible floodplain development:

   a. No new access is being provided to a floodplain area.

   b. The City of Saint Paul and City of South Saint Paul have zoning regulations that control floodplain development.

LONGITUDINAL ENCROACHMENT

Multiple trail alignment alternatives were considered during project development in order to avoid and minimize longitudinal floodplain encroachment. A board walk will be constructed in an area where significant fill would have been placed within the floodplain. In areas where floodplain encroachment will occur, the amount of fill required to construct the trail is insignificant compared to the overall floodplain.

COORDINATION

Coordination of the floodplain impacts and mitigation will occur during the project permitting. Site plan approval will be required from the City of Saint Paul and the City of South Saint Paul. A Public Waters

Work Permit will be required from the MnDNR for any impacts below the ordinary high water level. A permit will also be obtained from the US Army Corps of Engineers. An NPDES General Construction Stormwater Permit will be required from the MPCA.

CONCLUDING STATEMENT
Based on the above assessment, no significant floodplain impacts are expected.

ATTACHMENTS
-- FIRM Maps
-- Floodplain Maps (F1 - F18)
-- Floodplain Impact and Mitigation Maps (FP1 – FP47)

NOTES TO USERS

[illegible]

Base Flood Elevations [illegible]

Coastal Base Flood Elevations (BFEs) [illegible]

[illegible] **floodways** [illegible]

[illegible] **flood control structures** [illegible]

[illegible] **projection** [illegible]

[illegible] **vertical datum** [illegible]

[illegible]

[illegible] **bench marks** [illegible]

Base map [illegible]

[illegible]

Corporate limits [illegible]

[illegible] **Map Index** [illegible]

[illegible] **Map Service Center (MSC)** [illegible]

[illegible] **questions about this map** [illegible] **FEMA Map Information eXchange (FMIX)** [illegible]

LEGEND

🟩 SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

[illegible]

ZONE A	[illegible]
ZONE AE	[illegible]
ZONE AH	[illegible]
ZONE AO	[illegible]
ZONE AR	[illegible]
ZONE A99	[illegible]
ZONE V	[illegible]
ZONE VE	[illegible]

🟩 FLOODWAY AREAS IN ZONE AE

[illegible]

▨ OTHER FLOOD AREAS

ZONE X	[illegible]

☐ OTHER AREAS

ZONE X	[illegible]
ZONE D	[illegible]

▨ COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

▨ OTHERWISE PROTECTED AREAS (OPAs)

[illegible]

MAP SCALE 1" = 500'

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0019E

FIRM

FLOOD INSURANCE RATE MAP

DAKOTA COUNTY, MINNESOTA AND INCORPORATED AREAS

PANEL 19 OF 325

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible] **Map Number** [illegible] **Community Number** [illegible]

MAP NUMBER
27037C0019E

EFFECTIVE DATE
DECEMBER 2, 2011

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Stillwater elevations in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood protection structures**. Refer to Section 2.4 "Flood Protection Structures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services (NGS)
NOAA, N/NGS12
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, MD 20910-3282
(301) 713-3191

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided by the Aerial Information Mapping Program produced at a resolution of 1" = 400' on true colored 24bit at 1994.

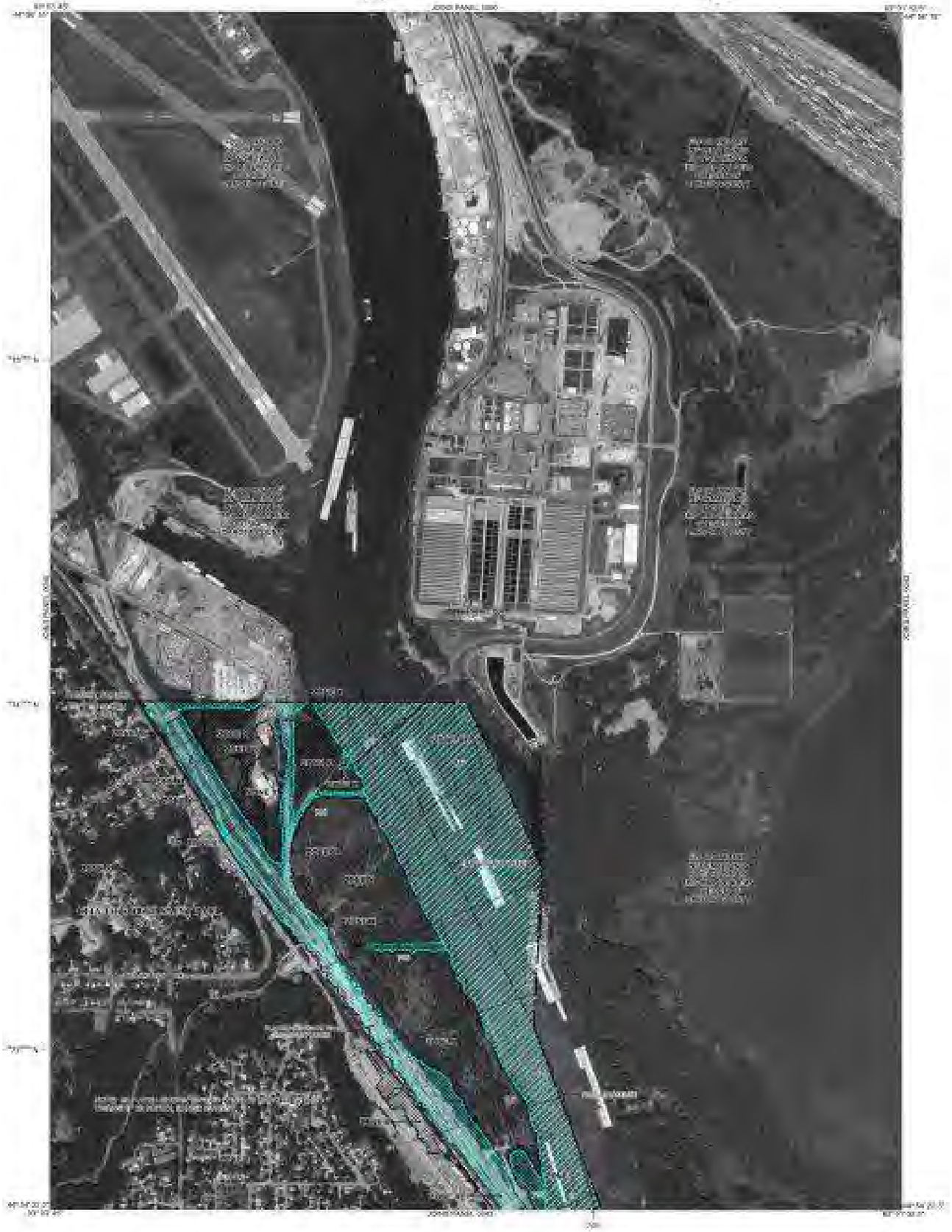
The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the Flood Insurance Study report. As a result of more refined conveyance data, the profile baselines in some cases may not coincide exactly with the channel centerline, as shown on the Flood Insurance Rate Map (FIRM).

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM, visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the "base flood," is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of special flood hazard include Zones A, AE, AH, AO, A99, AR, AR/A, AR/AE, AR/AH, AR/AO, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction. No Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without a substantial increase in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet
- (EL 987) Base Flood Elevation value where uniform within zone; elevation in feet
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- Western hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 15
- 5000-foot grid ticks: Minnesota State Plane coordinate system, South zone (FIPSZONE 2202), Transverse Mercator projection
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
DECEMBER 2, 2011

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0041E

FIRM
FLOOD INSURANCE RATE MAP

DAKOTA COUNTY, MINNESOTA
AND INCORPORATED AREAS

PANEL 41 OF 325

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
[illegible]	270101	0041	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

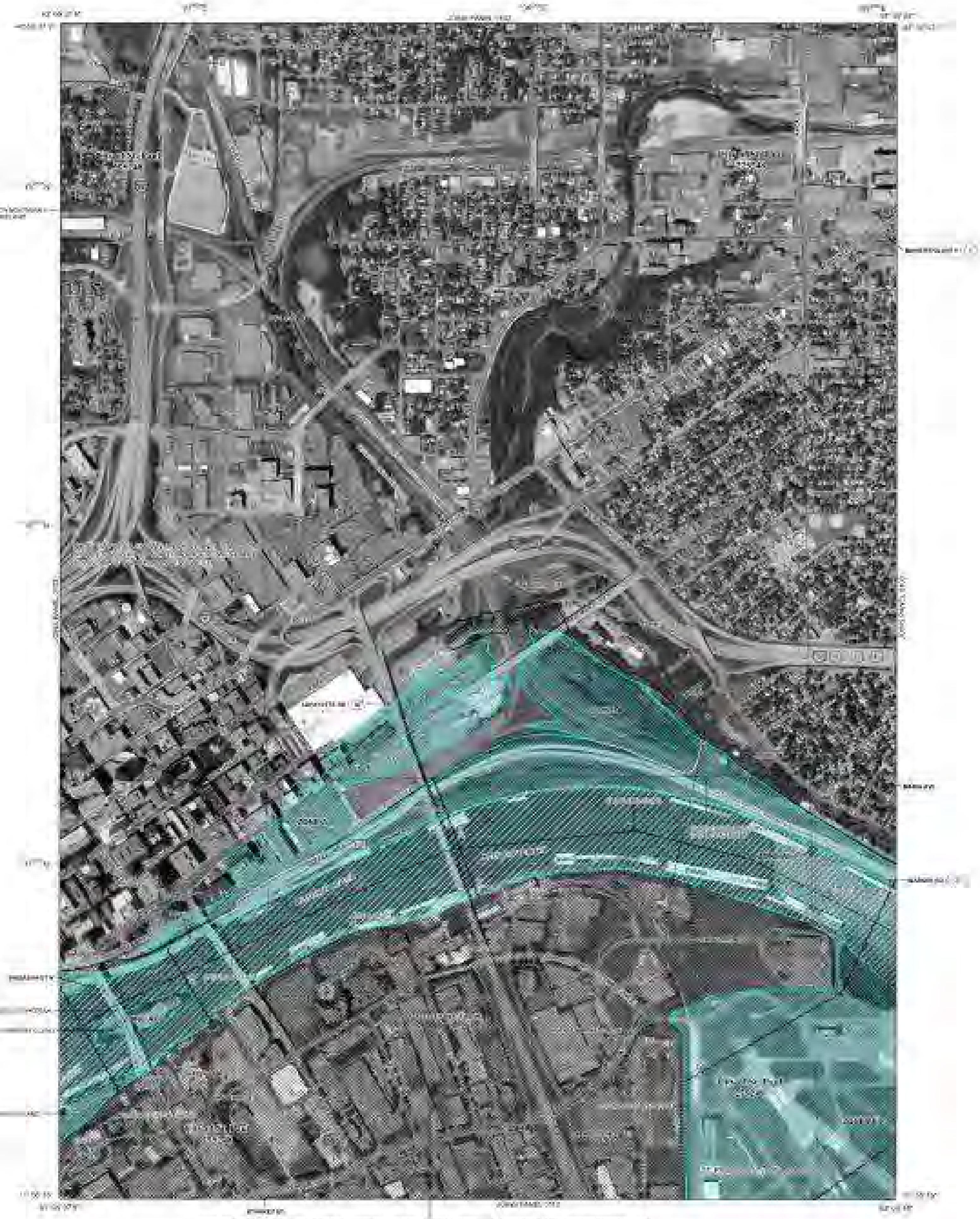
MAP NUMBER
27037C0041E

EFFECTIVE DATE
DECEMBER 2, 2011

Federal Emergency Management Agency

NOTES TO USERS

LEGEND



NOTE: THIS AREA IS SHOWN AS BEING PROTECTED FROM THE 1-PERCENT-ANNUAL-CHANCE OR GREATER FLOOD HAZARD BY A LEVEE SYSTEM THAT HAS BEEN PROVISIONALLY ACCREDITED. OVERTOPPING OR FAILURE OF ANY LEVEE SYSTEM IS POSSIBLE. FOR ADDITIONAL INFORMATION SEE THE "PROVISIONALLY ACCREDITED LEVEE NOTE" IN NOTES TO USERS.

MAP SCALE 1" = 500'

NATIONAL FLOOD INSURANCE PROGRAM

NFIP

PANEL 0104G

FIRM

FLOOD INSURANCE RATE MAP

RAMSEY COUNTY, MINNESOTA (ALL JURISDICTIONS)

PANEL 104 OF 140

MAP NUMBER 27123C0104G

EFFECTIVE DATE June 4, 2010

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information and details on these structures.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Special flood hazard areas include Zones A, AE, AH, AO, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A — No Base Flood Elevation determined.

ZONE AE — Base Flood Elevation determined.

ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevation determined.

ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet*
- Limit of Moderate Wave Action (LiMWA)
- (A) — (A) Cross section line
- (23) — (23) Transect line
- 97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1000 Flood Elevation value where uniform within zone; elevation in feet*
- 5000 Elevation reference mark with elevation value
- M1.5 River mile
- * Referenced to the North American Vertical Datum of 1988 (NAVD 88)

MAP SCALE 1" = 500'

PANEL 0112G

FIRM

FLOOD INSURANCE RATE MAP

RAMSEY COUNTY, MINNESOTA
(ALL JURISDICTIONS)

PANEL 112 OF 140

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
ST. PAUL, CITY OF	270414	0112	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
27123C0112G
EFFECTIVE DATE
June 4, 2010

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

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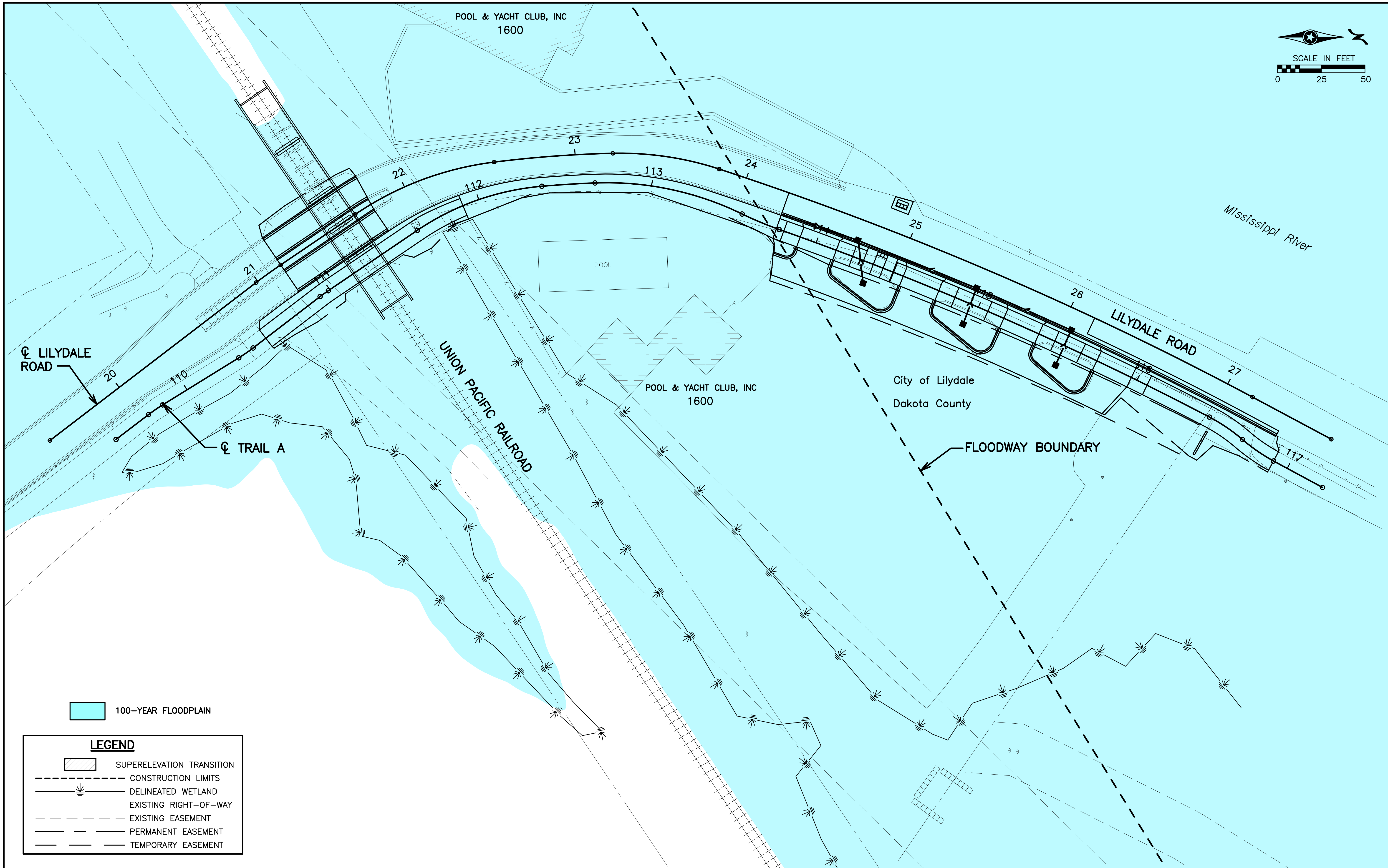


NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: ____________

DATE: ____________ LIC. NO. ____________

TKDA

ROBERT PIRAM REGIONAL TRAIL

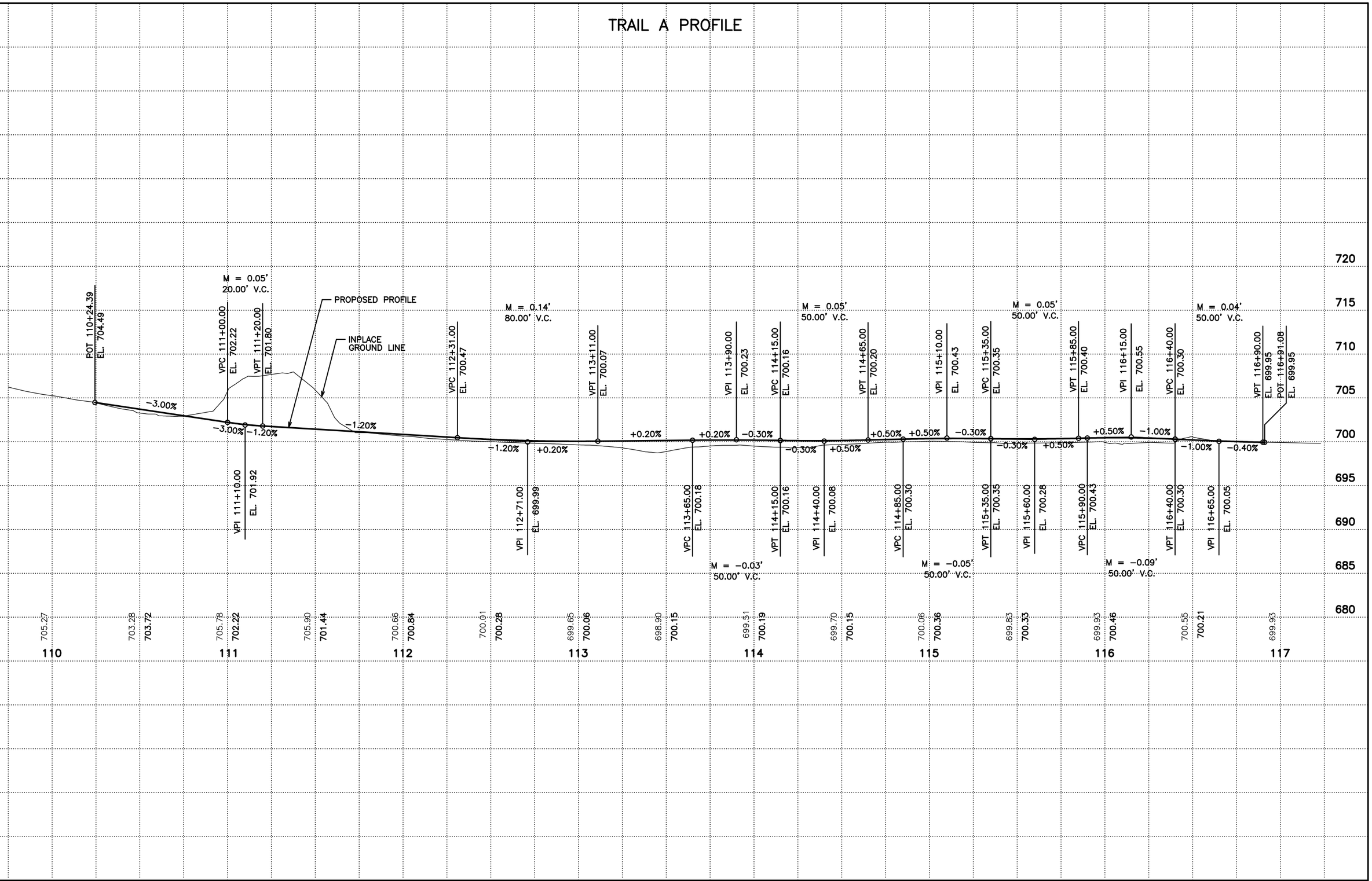
100-YEAR FLOODPLAIN

LILYDALE ROAD STA. 20+54.74 TO STA. 22+08

S.P. 164-090-014

SHEET NO. F1 OF F18

TRAIL A PROFILE



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

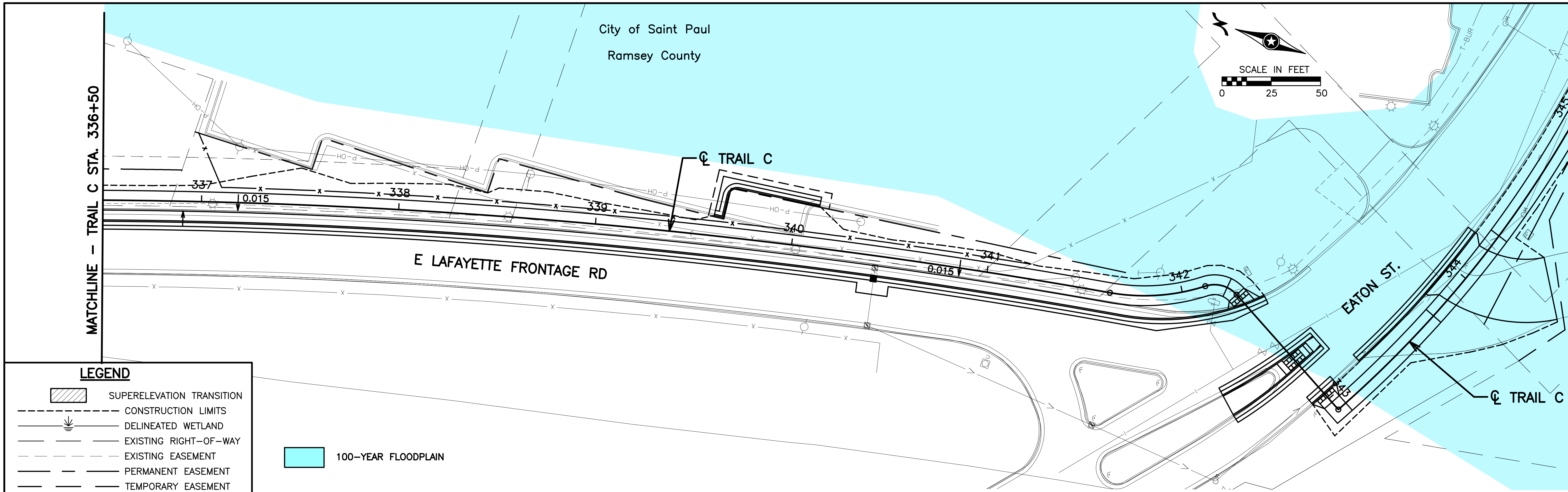
ROBERT PIRAM REGIONAL TRAIL

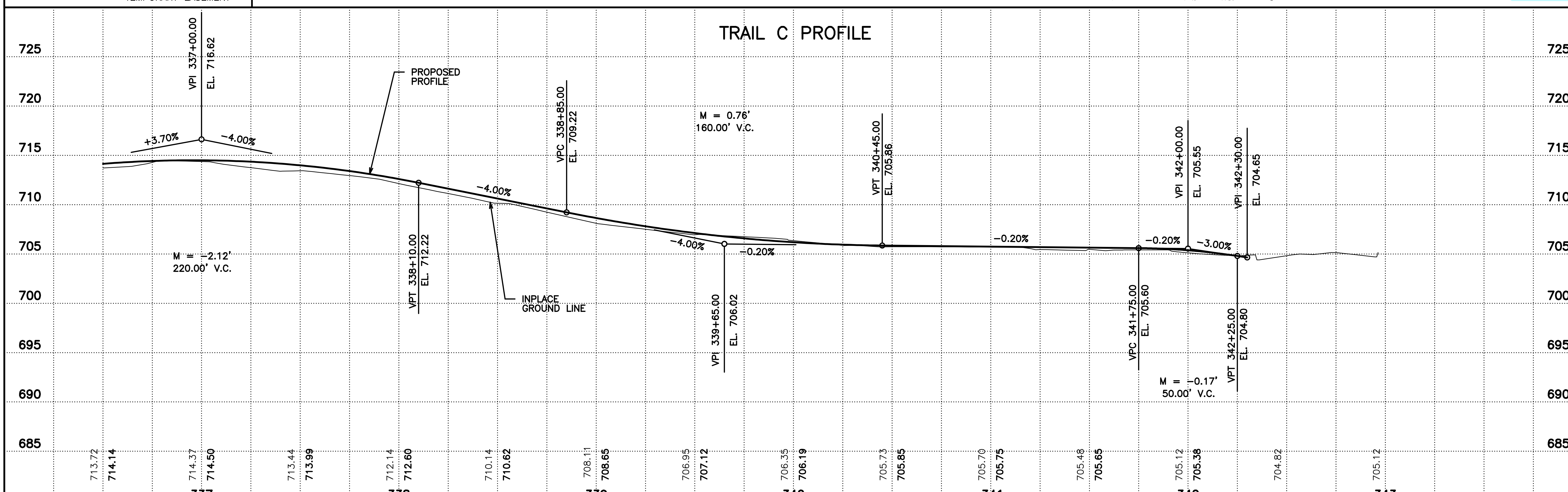
100−YEAR FLOODPLAIN

TRAIL A

S.P. 164−090−014

SHEET NO. F2 OF FP18


City of Saint Paul
Ramsey County
SCALE IN FEET
0 25 50
MATCHLINE – TRAIL C STA. 336+50
℄ TRAIL C
E LAFAYETTE FRONTAGE RD
EATON ST.
0.015
337
338
339
340
341
342
344
345
LEGEND
SUPERELEVATION TRANSITION
CONSTRUCTION LIMITS
DELINEATED WETLAND
EXISTING RIGHT–OF–WAY
EXISTING EASEMENT
PERMANENT EASEMENT
TEMPORARY EASEMENT
100–YEAR FLOODPLAIN


TRAIL C PROFILE
725
720
715
710
705
700
695
690
685
VPI 337+00.00
EL. 716.62
+3.70%
–4.00%
M = –2.12'
220.00' V.C.
PROPOSED PROFILE
VPT 338+10.00
EL. 712.22
–4.00%
INPLACE GROUND LINE
VPC 338+85.00
EL. 709.22
M = 0.76'
160.00' V.C.
–4.00%
VPI 339+65.00
EL. 706.02
–0.20%
VPT 340+45.00
EL. 705.86
–0.20%
VPC 341+75.00
EL. 705.60
VPI 342+00.00
EL. 705.55
–0.20%
–3.00%
VPI 342+30.00
EL. 704.65
VPT 342+25.00
EL. 704.80
M = –0.17'
50.00' V.C.
713.72 714.14
714.37 714.50
713.44 713.99
712.14 712.60
710.14 710.62
708.11 708.65
706.95 707.12
706.35 706.19
705.73 705.85
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704.82
705.12
337
338
339
340
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342
343

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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: ____________

DATE: ____________ LIC. NO. ______

TKDA

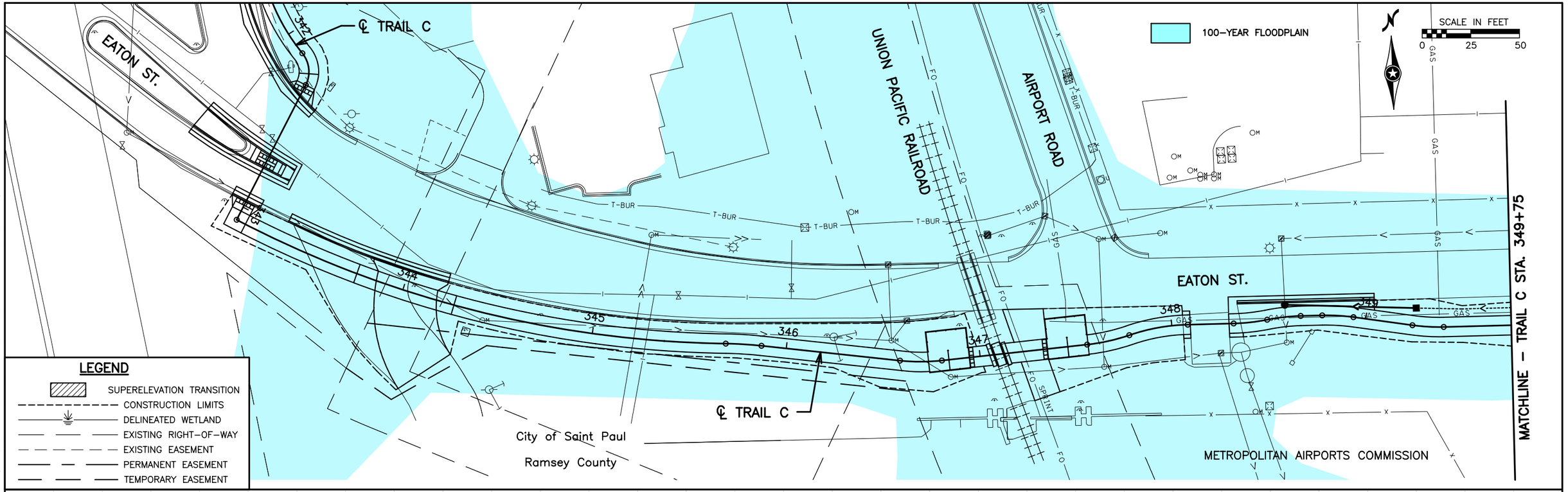
ROBERT PIRAM REGIONAL TRAIL

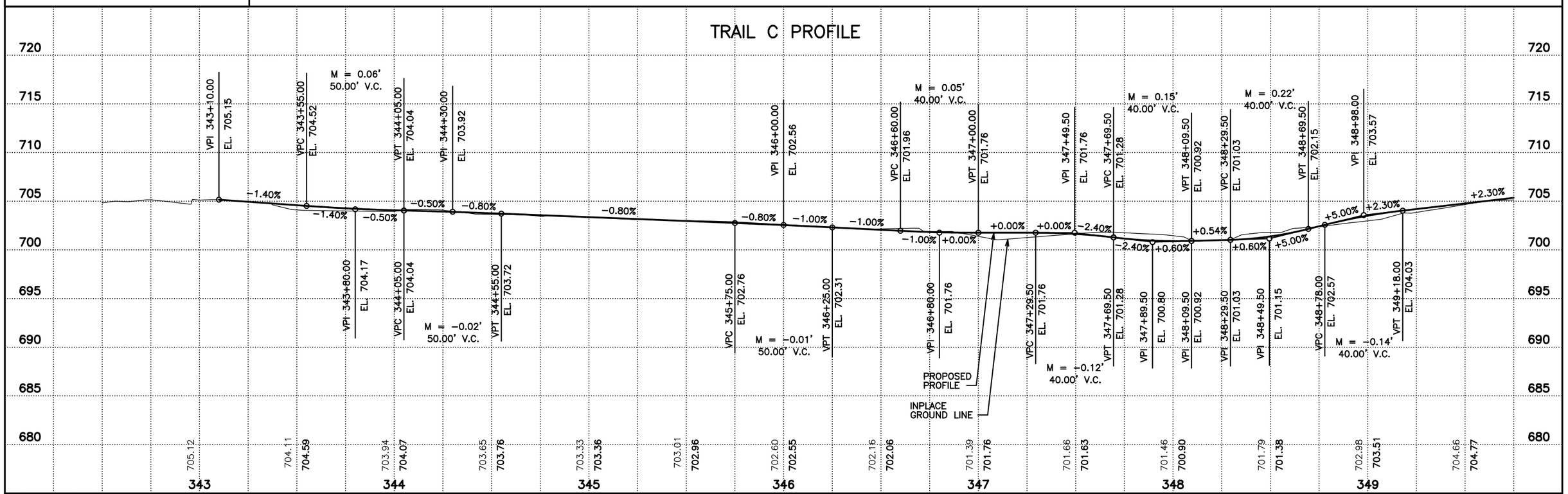
100–YEAR FLOODPLAIN

TRAIL C STA. 336+50 TO STA. 342+49.49

S.P. 164–090–014

SHEET NO. F3 OF F18





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

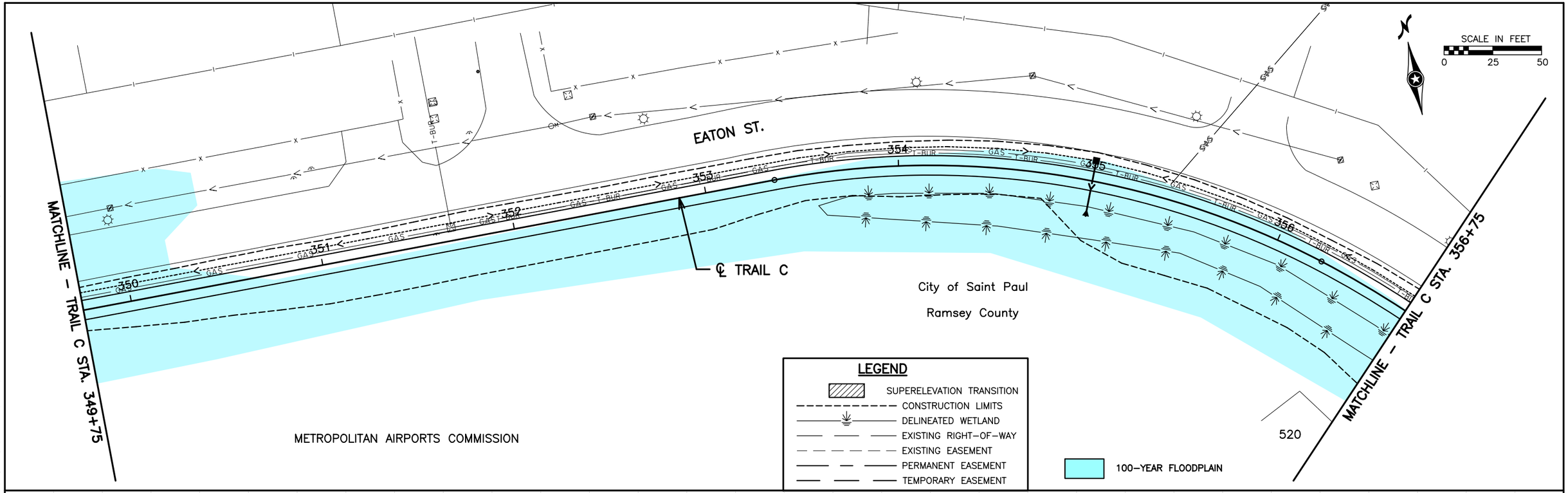
ROBERT PIRAM REGIONAL TRAIL

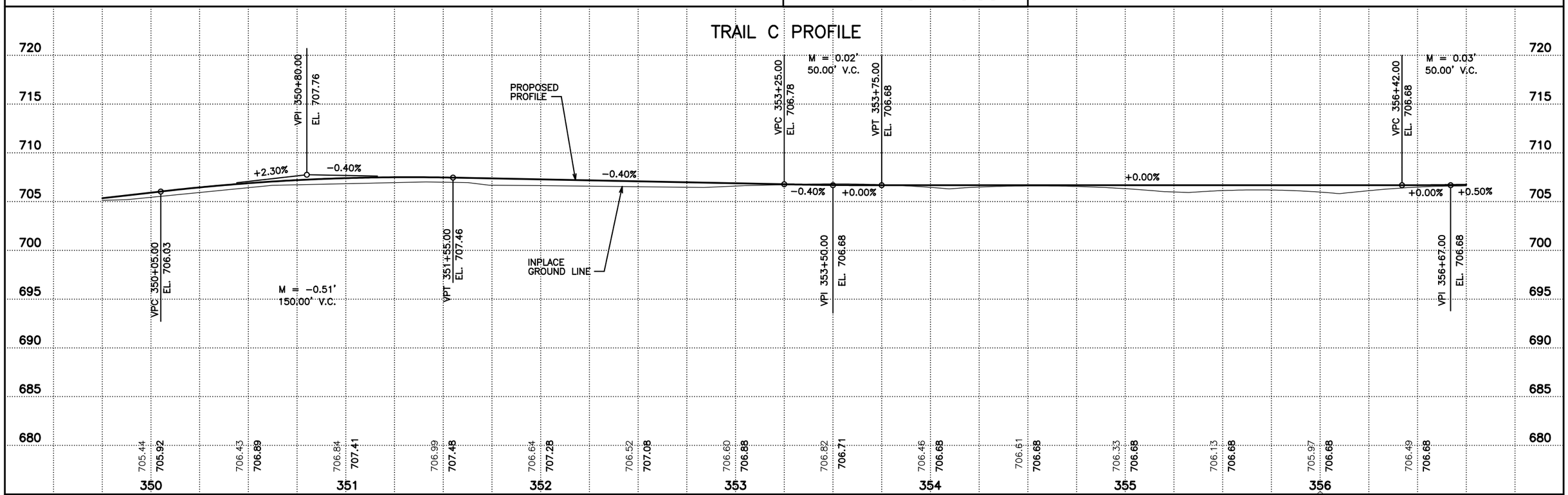
100-YEAR FLOODPLAIN

TRAIL C STA. 343+02.29 TO STA. 349+75

S.P. 164-090-014

SHEET NO. F4 OF F18





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

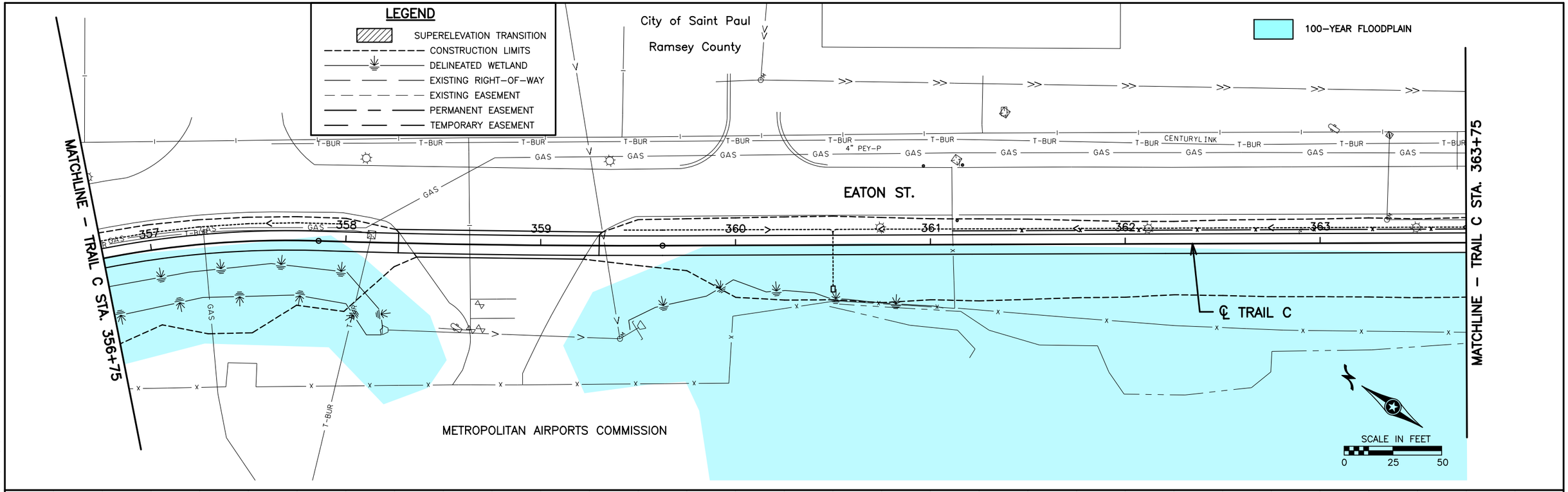
ROBERT PIRAM REGIONAL TRAIL

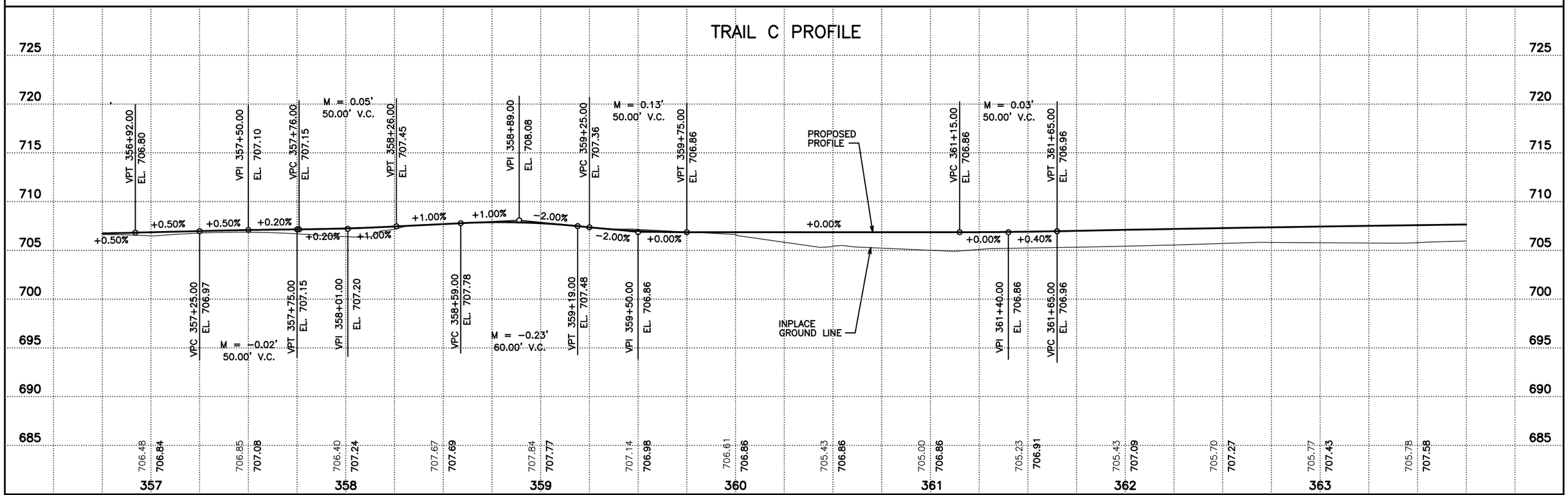
100–YEAR FLOODPLAIN

TRAIL C STA. 349+75 TO STA. 356+75

S.P. 164–090–014

SHEET NO. F5 OF F18





NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

100-YEAR FLOODPLAIN

TRAIL C STA. 356+75 TO STA. 363+75

S.P. 164-090-014

SHEET NO. F6 OF F18

DATE: 11/10/2017 TIME: 9:18:32 AM
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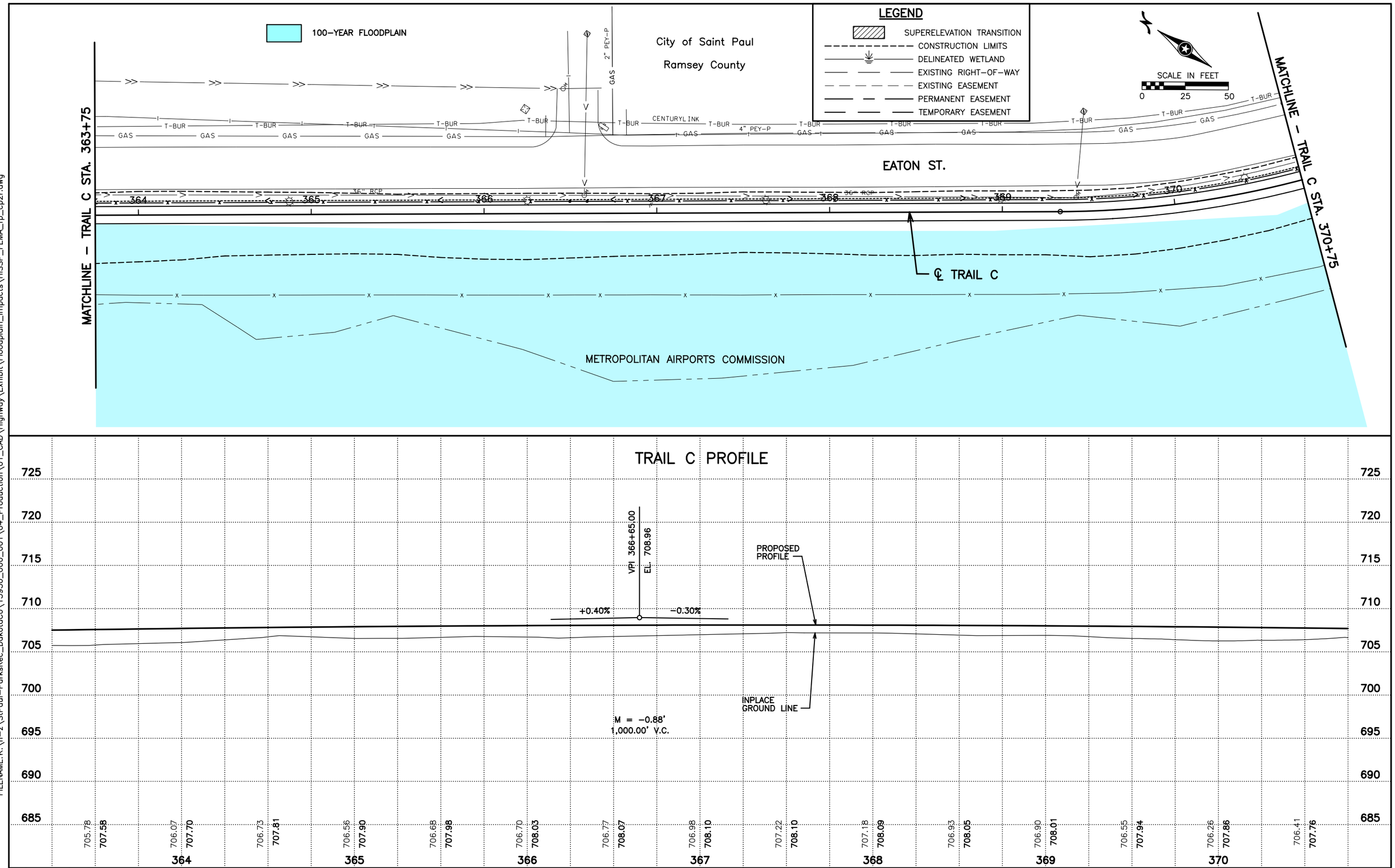

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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

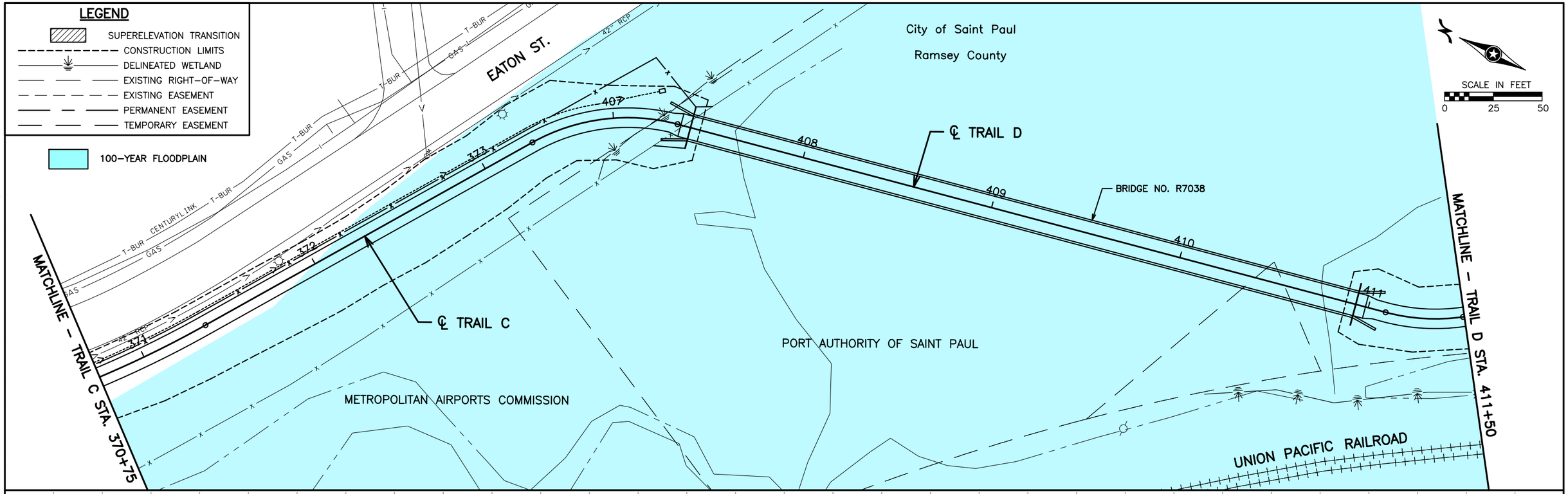
ROBERT PIRAM REGIONAL TRAIL

100-YEAR FLOODPLAIN

TRAIL C STA. 363+75 TO STA. 370+75

S.P. 164-090-014

SHEET NO. F7 OF F18



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

100-YEAR FLOODPLAIN
TRAIL C STA. 370+75 TO STA. 373+27.25
TRAIL D STA. 406+56.29 TO STA. 411+50

S.P. 164-090-014

SHEET NO. F8 OF F18

City of Saint Paul

Ramsey County

PORT AUTHORITY OF SAINT PAUL

SCALE IN FEET
0 25 50

BRIDGE NO. R0739

℄ TRAIL D

MATCHLINE – TRAIL D STA. 411+50

MATCHLINE – TRAIL D STA. 418+50

UNION PACIFIC RAILROAD

100–YEAR FLOODPLAIN

412 413 414 415 416 417 418

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT–OF–WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

TRAIL D PROFILE

715 710 705 700 695 690 685 680

VPC 411+50.00 EL. 696.31
M = 0.22' 50.00' V.C.
VPT 412+00.00 EL. 695.18
VPT 411+50.00 EL. 696.31
VPI 411+75.00 EL. 695.31
VPC 413+41.00 EL. 694.48
M = 0.08' 50.00' V.C.
VPT 413+91.00 EL. 694.55
VPI 413+66.00 EL. 694.35
PROPOSED PROFILE
INPLACE GROUND LINE
VPC 414+83.50 EL. 695.29
M = 0.20' 50.00' V.C.
VPT 415+33.50 EL. 696.49
VPI 415+58.50 EL. 697.49
VPI 415+08.50 EL. 695.49
VPC 415+33.50 EL. 696.49
M = −0.25' 50.00' V.C.
VPT 415+83.50 EL. 697.49
BRIDGE NO. R0739
VPI 417+80.00 EL. 697.49
VPC 417+55.00 EL. 697.49
M = −0.07' 50.00' V.C.
VPC 418+05.00 EL. 697.19
M = 0.39' 50.00' V.C.
VPT 418+05.00 EL. 697.19
VPI 418+30.00 EL. 696.89

−4.00% −0.50% −0.50% +0.80% −0.50% +0.80% +4.00% +4.00% +0.00% +0.00% −1.20% −1.20% +5.00%

696.31 695.18 694.93 694.68 694.44 694.63 695.03 695.51 697.05 697.49 697.49 697.49 697.49 697.25 697.91

412 413 414 415 416 417 418

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

100–YEAR FLOODPLAIN

TRAIL D STA. 411+50 TO STA. 418+50

S.P. 164–090–014

SHEET NO. F9 OF F18

DATE: 11/10/2017 TIME: 9:18:38 AM
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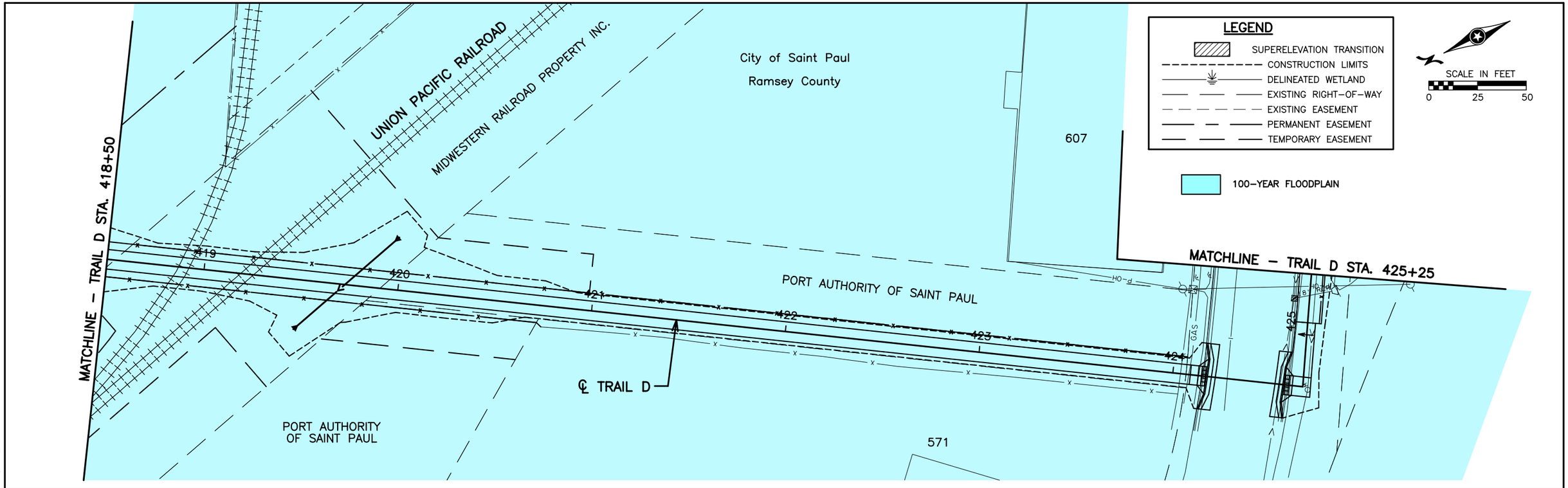

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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

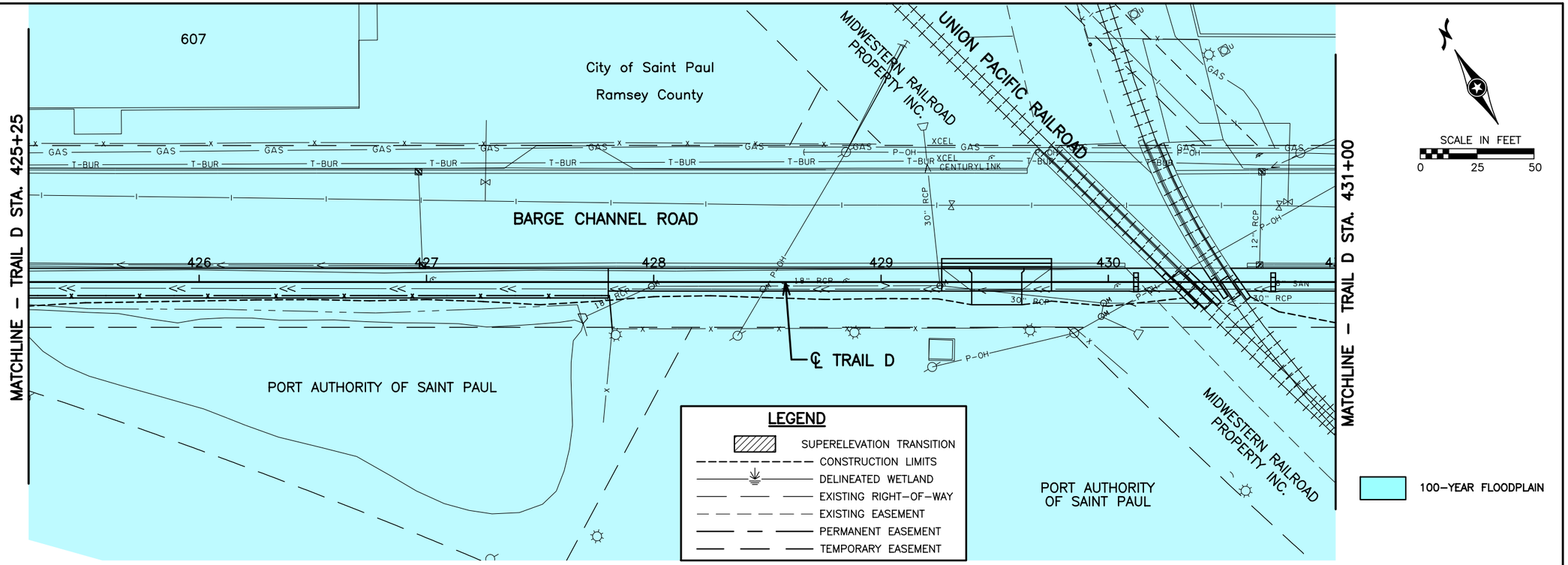
TKDA

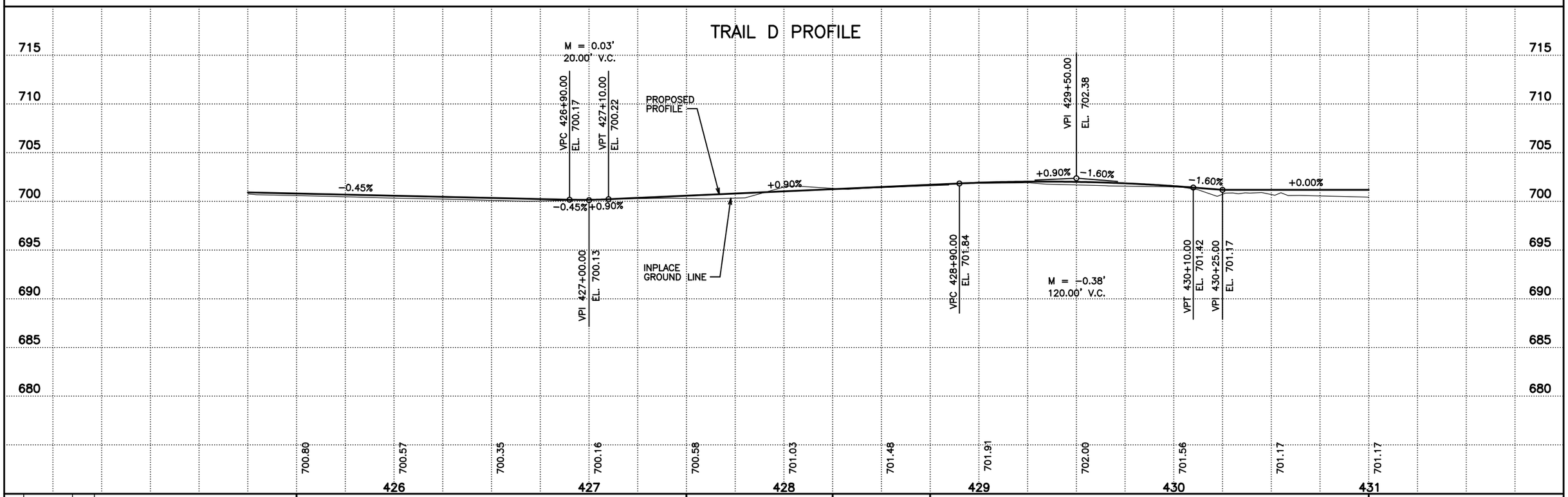
ROBERT PIRAM
REGIONAL TRAIL

100-YEAR FLOODPLAIN
TRAIL D STA. 418+50 TO STA. 425+25

S.P. 164-090-014

SHEET NO. F10 OF F18





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

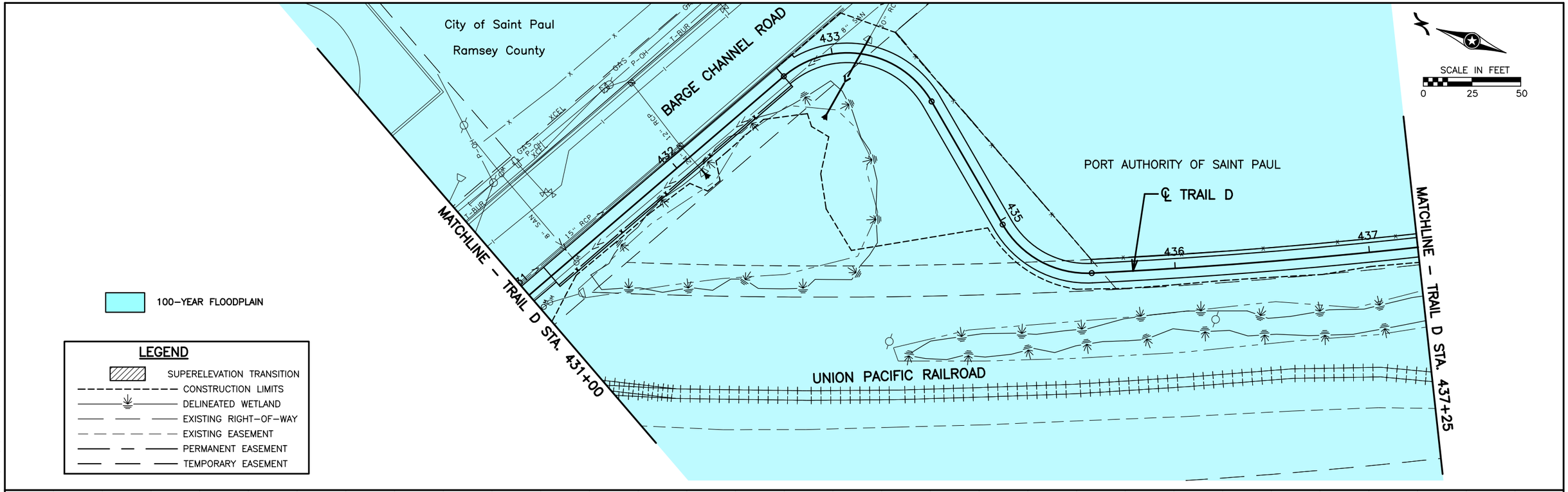
TKDA

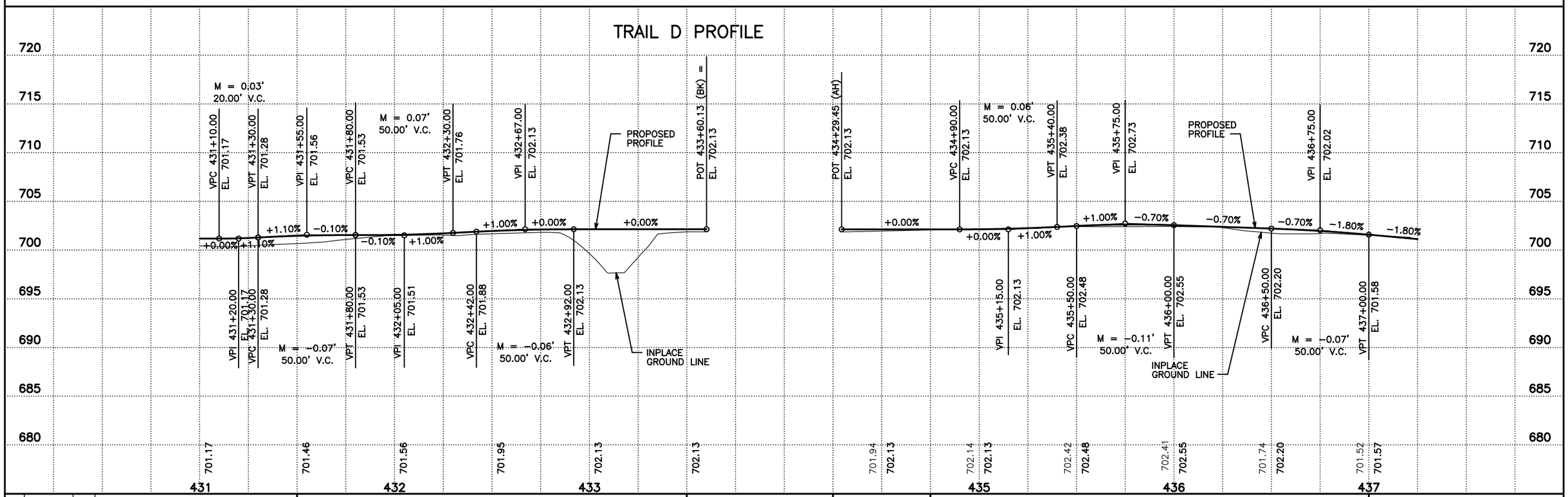
ROBERT PIRAM
REGIONAL TRAIL

100–YEAR FLOODPLAIN
TRAIL D STA. 425+25 TO STA. 431+00

S.P. 164–090–014

SHEET NO. F11 OF F18





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

100–YEAR FLOODPLAIN

TRAIL D STA. 431+00 TO STA. 437+25

S.P. 164–090–014

SHEET NO. F12 OF F18

City of Saint Paul

Ramsey County

PORT AUTHORITY OF SAINT PAUL

MATCHLINE – TRAIL D STA. 437+25

℄ TRAIL D

SCALE IN FEET
0 25 50

Ramsey County/City of Saint Paul

Dakota County/City of South St. Paul

END TRAIL D
STA. 444+08.79 =
BEGIN TRAIL E
STA. 509+99.12

100–YEAR FLOODPLAIN

UNION PACIFIC RAILROAD

UNION PACIFIC RAILROAD

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT–OF–WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

TRAIL D PROFILE

720 715 710 705 700 695 690 685 680

438 439 440 441 442 443 444

VPC 437+35.00 EL. 700.94 M = 0.06' 50.00' V.C.
VPI 437+60.00 EL. 700.50
VPT 437+85.00 EL. 700.27
VPC 438+65.00 EL. 699.55 M = 0.06' 50.00' V.C.
VPI 438+90.00 EL. 699.33
VPT 439+15.00 EL. 699.33
VPC 439+25.00 EL. 699.33 M = –0.08' 50.00' V.C.
VPI 439+50.00 EL. 699.33
VPC 439+75.00 EL. 699.03 M = 0.09' 50.00' V.C.
VPT 439+75.00 EL. 699.03
VPI 440+00.00 EL. 698.73
VPT 440+25.00 EL. 698.78
PROPOSED PROFILE
INPLACE GROUND LINE
VPC 440+95.00 EL. 698.92 M = 0.02' 50.00' V.C.
VPI 441+20.00 EL. 698.97
VPT 441+45.00 EL. 699.09
VPC 441+75.00 EL. 699.24 M = –0.17' 50.00' V.C.
VPI 442+00.00 EL. 699.37
VPT 442+25.00 EL. 698.79
VPC 442+55.00 EL. 698.10 M = 0.24' 50.00' V.C.
VPI 442+80.00 EL. 697.52
VPT 443+05.00 EL. 697.90
VPC 443+67.50 EL. 698.84 M = 0.02' 15.00' V.C.
VPI 443+75.00 EL. 698.95
VPT 443+82.50 EL. 699.14
VPC 443+92.50 EL. 699.39 M = –0.02' 15.00' V.C.
VPT 444+00.00 EL. 699.58
VPT 444+07.50 EL. 699.68
VPT 444+08.79 EL. 699.70

–1.80% –1.80% –0.90% –0.90% –0.90% +0.00% +0.00% +0.00% –1.20% –1.20% +0.20% +0.20% +0.20% +0.50% +0.50% +0.50% –2.30% –2.30% –2.30% +1.50% +1.50% +1.50% +2.50% +2.50% +1.40%

700.61 700.70 700.03 700.14 699.72 699.69 699.31 699.35 699.14 699.25 698.61 698.81 698.36 698.83 698.29 698.93 698.43 699.12 698.41 699.19 697.89 698.22 697.80 697.83 698.82 698.57 699.56 699.55

DATE: 12/8/2017 TIME: 11:17:55 AM
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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

100–YEAR FLOODPLAIN

TRAIL D STA. 437+25 TO STA. 444+08.79

S.P. 164–090–014

SHEET NO. F13 OF F18

END TRAIL D
STA. 444+08.79 =
BEGIN TRAIL E
STA. 509+99.12

Ramsey County/City of St Paul
Dakota County/City of South St. Paul

City of South St. Paul
Dakota County

℄ TRAIL E

510 511 512 513 514 515 516

UNION PACIFIC RAILROAD

MATCHLINE – TRAIL E STA. 516+50

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT–OF–WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- 100–YEAR FLOODPLAIN

SCALE IN FEET
0 25 50

TRAIL E PROFILE

PROPOSED PROFILE
INPLACE GROUND LINE

POT 509+99.12 EL. 699.70
VPC 510+06.75 EL. 699.80
VPI 510+31.75 EL. 700.15
VPT 510+56.75 EL. 701.40
M = 0.22' 50.00' V.C.
+1.40% +5.00% +5.00%

VPC 511+30.00 EL. 705.06
M = –1.69' 180.00' V.C.
+5.00% –2.50%
VPI 512+20.00 EL. 709.56

VPT 513+10.00 EL. 707.31
VPC 513+10.00 EL. 707.31
M = 0.69' 100.00' V.C.
–2.50% +3.00%
VPI 513+60.00 EL. 706.06

VPT 514+10.00 EL. 707.57
+3.00% +3.00%

VPC 514+94.00 EL. 710.09
M = –0.19' 50.00' V.C.
+3.00% +0.00%
VPI 515+19.00 EL. 710.84
VPT 515+44.00 EL. 710.84
+0.00%

	511		512		513		514		515		516	
	699.52	699.71	703.29	703.56	709.33	705.98	709.75	707.54	708.19	708.06	706.06	707.54
	705.00	706.75	705.84	707.29	707.24	708.77	709.47	710.25	709.92	710.84	709.42	710.84
	708.51	710.84										

DATE: 11/10/2017 TIME: 9:19:25 AM
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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

100–YEAR FLOODPLAIN
TRAIL E STA. 509+99.12 TO STA. 516+50

S.P. 164–090–014
SHEET NO. F14 OF F18

City of South St. Paul

Dakota County

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- 100-YEAR FLOODPLAIN

SCALE IN FEET
0 25 50

MATCHLINE – TRAIL E STA. 516+50

MATCHLINE – TRAIL E STA. 523+50

℄ TRAIL E

517 518 519 520 521 522 523

T-BUR

T-BUR

UNION PACIFIC RAILROAD

TRAIL E PROFILE

PROPOSED PROFILE

INPLACE GROUND LINE

+0.00% +0.00% −0.70% −0.70% −0.70% +5.00% +5.00%

VPI 518+45.00 EL. 710.84

VPC 518+20.00 EL. 710.84

VPT 518+70.00 EL. 710.66

M = −0.04' 50.00' V.C.

VPC 522+00.00 EL. 708.35

VPI 522+50.00 EL. 708.00

M = 0.71' 100.00' V.C.

VPT 523+00.00 EL. 710.50

725 720 715 710 705 700 695 690 685

708.51 710.84 | 708.45 710.84 | 709.93 710.84 | 709.12 710.84 | 710.01 710.77 | 709.09 710.45 | 708.38 710.10 | 707.94 709.75 | 708.81 709.40 | 708.22 709.05 | 707.33 708.70 | 706.35 708.35 | 707.74 708.71 | 707.78 710.50 | 709.47 713.00

517 518 519 520 521 522 523

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

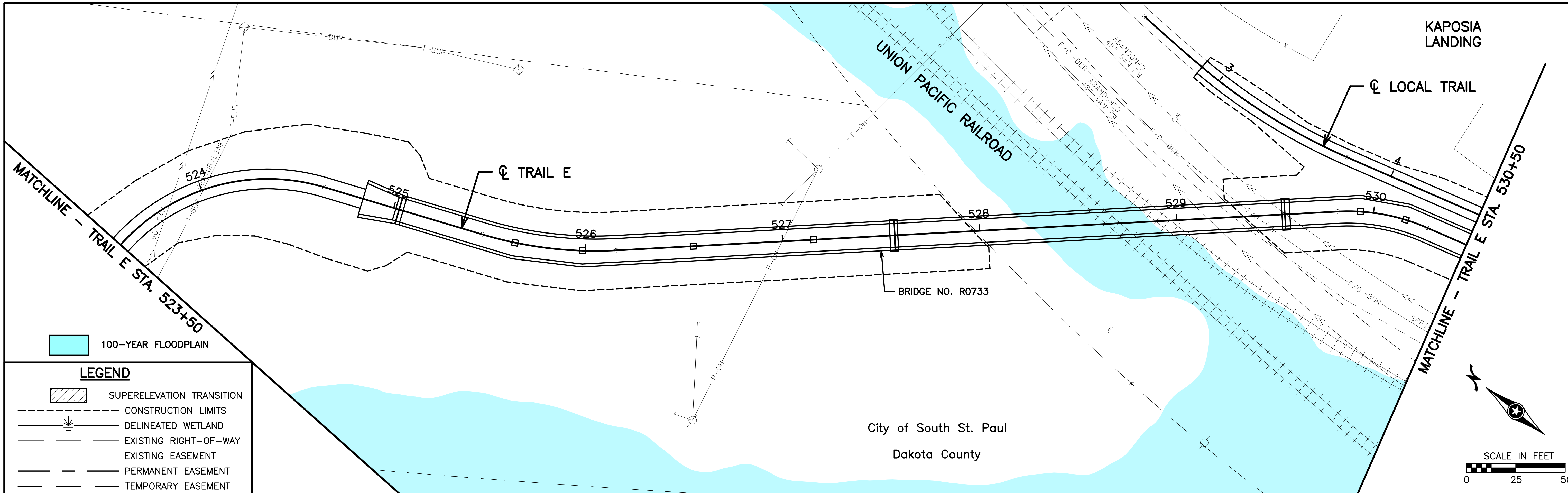
100-YEAR FLOODPLAIN

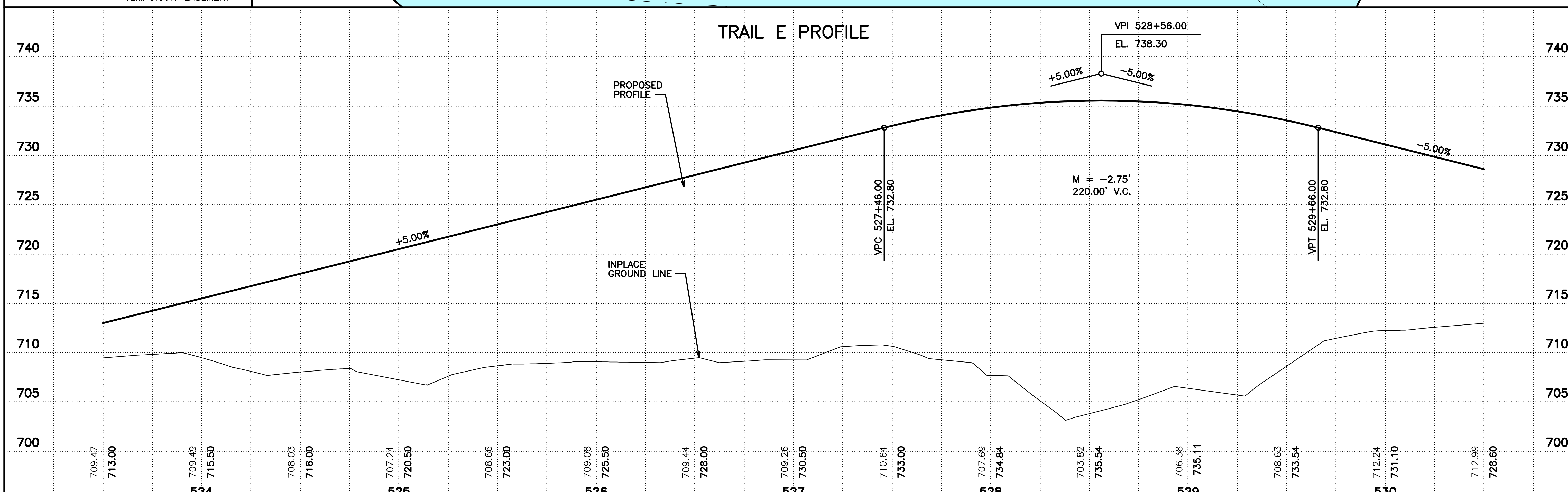
TRAIL E STA. 516+50 TO STA. 523+50

S.P. 164-090-014

SHEET NO. F15 OF F18

DATE: 11/10/2017 TIME: 9:19:28 AM
FILENAME: K:\n-z\StPaul-ParksRec_DakotaCo\15950_000_001\04_Production\01_CAD\Highway\Exhibit\Floodplain_Impacts\HISSP_FEMA_fp_cp3b.dwg





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: ____________

DATE: ____________ LIC. NO. ____________

TKDA

ROBERT PIRAM REGIONAL TRAIL

100–YEAR FLOODPLAIN

TRAIL E STA. 523+50 TO STA. 530+50

S.P. 164–090–014

SHEET NO. F16 OF F18

KAPOSIA LANDING

City of South St. Paul

Dakota County

MATCHLINE – TRAIL E STA. 530+50

MATCHLINE – TRAIL E STA. 536+50

℄ LOCAL TRAIL

BRIDGE NO. R0733

ABANDONED 48" SAN FM

F/O -BUR

UNION PACIFIC RAILROAD

SCALE IN FEET

0 25 50

100-YEAR FLOODPLAIN

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

TRAIL E PROFILE

PROPOSED PROFILE

INPLACE GROUND LINE

-5.00%

+0.90%

VPC 533+34.49
EL. 714.38

VPT 534+34.49
EL. 712.33

M = 0.74'
100.00' V.C.

VPI 533+84.49
EL. 711.88

531	532	533	534	535	536
712.99 / 728.60	713.48 / 726.10	713.87 / 723.60	713.60 / 721.10	713.15 / 718.60	712.62 / 716.10
712.30 / 713.67	712.16 / 712.37	712.26 / 712.46	712.64 / 712.91	713.32 / 713.37	713.88 / 713.82
714.22 / 714.27					

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

100-YEAR FLOODPLAIN

TRAIL E STA. 530+50 TO STA. 536+50

S.P. 164-090-014

SHEET NO. F17 OF F18

DATE: 11/10/2017 TIME: 9:19:32 AM
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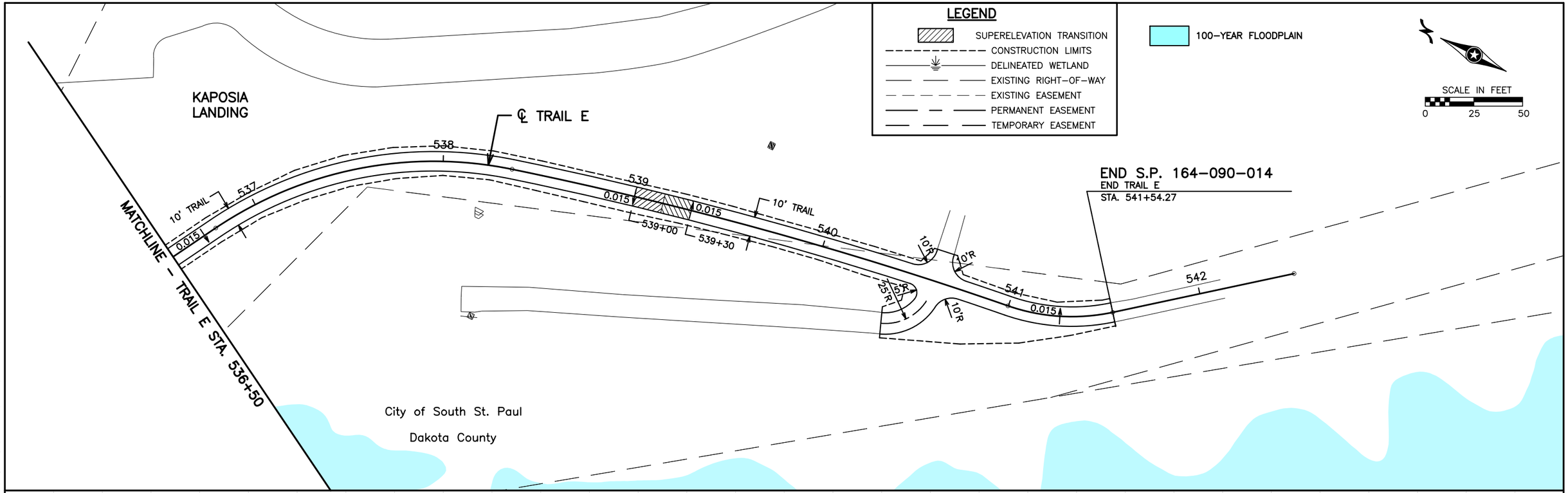

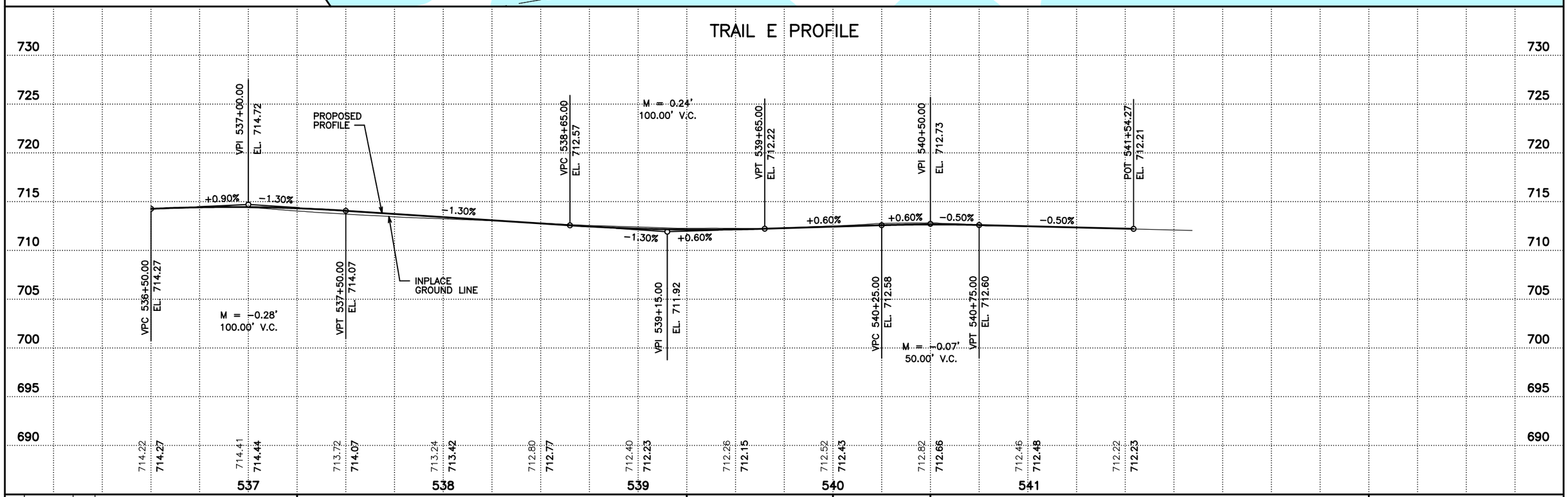

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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

100-YEAR FLOODPLAIN

TRAIL E STA. 536+50 TO STA. 541+54.27

S.P. 164-090-014

SHEET NO. F18 OF F18

City of Saint Paul

Ramsey County

MATCHLINE – TRAIL C STA. 336+50

IMPACTS	
FILL	53 CU YD
CUT	−12 CU YD
BALANCE	41 CU YD

THIS SHEET ONLY
NORTH OF EATON ST.

FLOODPLAIN FILL

FLOODPLAIN CUT

SCALE IN FEET
0 25 50

100-YEAR FLOODPLAIN ELEV. 706.3

℄ TRAIL C

E LAFAYETTE FRONTAGE RD

6" FORCEMAIN

EATON ST

100-YEAR FLOODPLAIN ELEV. 706.3

TH 52 (LAFAYETTE FREEWAY)

℄ TRAIL C

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

TRAIL C PROFILE

VPI 337+00.00 EL. 716.62

+3.70%

−4.00%

PROPOSED PROFILE

M = 2:12'
220.00' V.C.

VPT 338+10.00 EL. 712.22

INPLACE GROUND LINE

VPC 338+85.00 EL. 709.22

−4.00%

M = 0.76'
160.00' V.C.

VPI 339+65.00 EL. 706.02

−4.00%

0.20%

VPT 340+45.00 EL. 705.86

−0.20%

VPC 341+75.00 EL. 705.60

−0.20%

M = −0.17'
50.00' V.C.

VPI 342+00.00 EL. 705.55

−3.00%

VPT 342+25.00 EL. 704.80

VPI 342+30.00 EL. 704.65

725	720	715	710	705	700	695	690	685

	337	338	339	340	341	342	343
	713.72	714.37	713.44	712.14	710.14	708.11	706.95	706.35	705.73	705.70	705.48	705.12	704.82	705.12
	714.14	**714.50**	**713.99**	**712.60**	**710.62**	**708.65**	**707.12**	**706.19**	**705.85**	**705.75**	**705.65**	**705.38**		

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

FLOODPLAIN IMPACT & MITIGATION

TRAIL C STA. 336+50 TO STA. 342+49.49

S.P. 164-090-014

SHEET NO. FP1 OF FP47

DATE: 12/11/2017 TIME: 3:33:13 PM
FILENAME: K:\n-z\StPaul-ParksRec_DakotaCo\15950_000_001\04_Production\01_CAD\Highway\Exhibit\Floodplain_Impacts\HISSP_fp_cp2n.dwg

City of Saint Paul

Ramsey County

EATON ST.

℄ TRAIL C

100–YEAR FLOODPLAIN ELEV. 706.3

UNION PACIFIC RAILROAD

AIRPORT ROAD

IMPACTS	
FILL	50 CU YD
CUT	–76 CU YD
BALANCE	–26 CU YD

THIS SHEET ONLY SOUTH OF EATON ST.

FLOODPLAIN FILL

FLOODPLAIN CUT

MATCHLINE – TRAIL C STA. 349+75

METROPOLITAN AIRPORTS COMMISSION

SCALE IN FEET

0 25 50

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT–OF–WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

TRAIL C PROFILE

VPI 343+10.00 EL. 705.15

VPC 343+55.00 EL. 704.52

VPT 343+80.00 EL. 704.17

VPC 344+05.00 EL. 704.04

VPI 344+05.00 EL. 704.04

VPI 344+30.00 EL. 703.92

VPT 344+55.00 EL. 703.72

VPC 345+75.00 EL. 702.76

VPT 346+25.00 EL. 702.31

VPI 346+00.00 EL. 702.56

VPC 346+60.00 EL. 701.96

VPI 346+80.00 EL. 701.76

VPT 347+00.00 EL. 701.76

VPC 347+29.50 EL. 701.76

VPI 347+49.50 EL. 701.76

VPT 347+69.50 EL. 701.28

VPC 347+69.50 EL. 701.28

VPI 347+89.50 EL. 700.80

VPT 348+09.50 EL. 700.92

VPI 348+09.50 EL. 700.92

VPC 348+29.50 EL. 701.03

VPI 348+49.50 EL. 701.15

VPT 348+69.50 EL. 702.15

VPC 348+78.00 EL. 702.57

VPI 348+98.00 EL. 703.57

VPT 349+18.00 EL. 704.03

M = 0.06' 50.00' V.C.

M = –0.02' 50.00' V.C.

M = –0.01' 50.00' V.C.

M = 0.05' 40.00' V.C.

M = –0.12' 40.00' V.C.

M = 0.15' 40.00' V.C.

M = 0.22' 40.00' V.C.

M = –0.14' 40.00' V.C.

–1.40% –1.40% –0.50% –0.50% –0.80% –0.80% –0.80% –1.00% –1.00% –1.00% +0.00% +0.00% +0.00% –2.40% –2.40% +0.60% +0.54% +0.60% +5.00% +5.00% +2.30% +2.30%

PROPOSED PROFILE

INPLACE GROUND LINE

	343	344	345	346	347	348	349
Proposed	704.59	704.07	703.76	703.36	702.96	702.55	701.76	701.63	700.90	701.38	703.51
In place	705.12	704.11	703.94	703.65	703.33	703.01	702.60	702.16	701.39	701.66	701.46	701.79	702.98	704.66	704.77

DATE: 12/8/2017 TIME: 3:36:03 PM
FILENAME: K:\n-z\StPaul-ParksRec_DakotaCo\15950_000_001\04_Production\01_CAD\Highway\Exhibit\Floodplain_Impacts\HISSP_fp_cp2o.dwg

NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

FLOODPLAIN IMPACT & MITIGATION

TRAIL C STA. 343+02.29 TO STA. 349+75

S.P. 164–090–014

SHEET NO. FP2 OF FP47

City of Saint Paul

Ramsey County

EATON ST.

100-YEAR FLOODPLAIN ELEV. 706.3

100-YEAR FLOODPLAIN ELEV. 706.3

100-YEAR FLOODPLAIN ELEV. 706.3

MATCHLINE – TRAIL C STA. 349+75

MATCHLINE – TRAIL C STA. 356+75

℄ TRAIL C

Wetland STP-1

METROPOLITAN AIRPORTS COMMISSION

SCALE IN FEET
0 25 50

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- FLOODPLAIN FILL
- FLOODPLAIN CUT

IMPACTS

FILL	281 CU YD
CUT	−133 CU YD
BALANCE	148 CU YD
THIS SHEET ONLY	

TRAIL C PROFILE

VPI 350+80.00 EL. 707.76
VPC 350+05.00 EL. 706.03
VPT 351+55.00 EL. 707.46
VPC 353+25.00 EL. 706.78
VPT 353+75.00 EL. 706.68
VPI 353+50.00 EL. 706.68
VPC 356+42.00 EL. 706.68
VPI 356+67.00 EL. 706.68

PROPOSED PROFILE

INPLACE GROUND LINE

+2.30% −0.40% −0.40% −0.40% +0.00% +0.00% +0.00% +0.50%

M = −0.51' 150.00' V.C.

M = 0.02' 50.00' V.C.

M = 0.03' 50.00' V.C.

	350	351	352	353	354	355	356
	705.44	706.43	706.84	706.99	706.64	706.52	706.60	706.82	706.46	706.61	706.33	706.13	705.97	706.49
	705.92	706.89	707.41	707.48	707.28	707.08	706.88	706.71	706.68	706.68	706.68	706.68	706.68	706.68

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

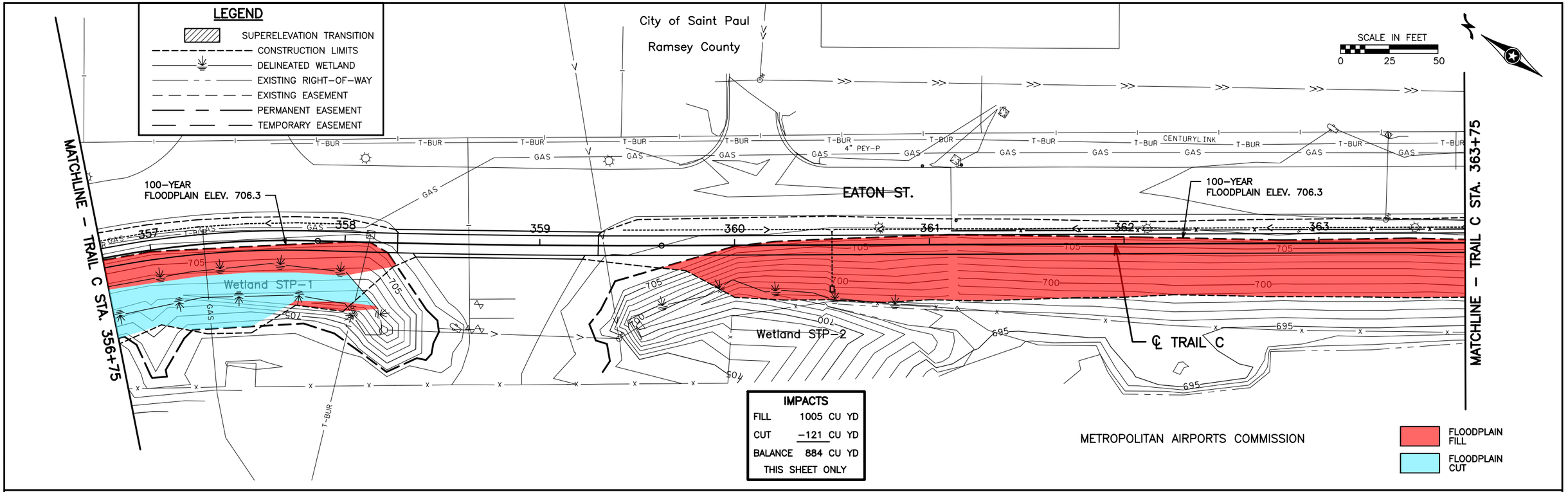
FLOODPLAIN IMPACT & MITIGATION

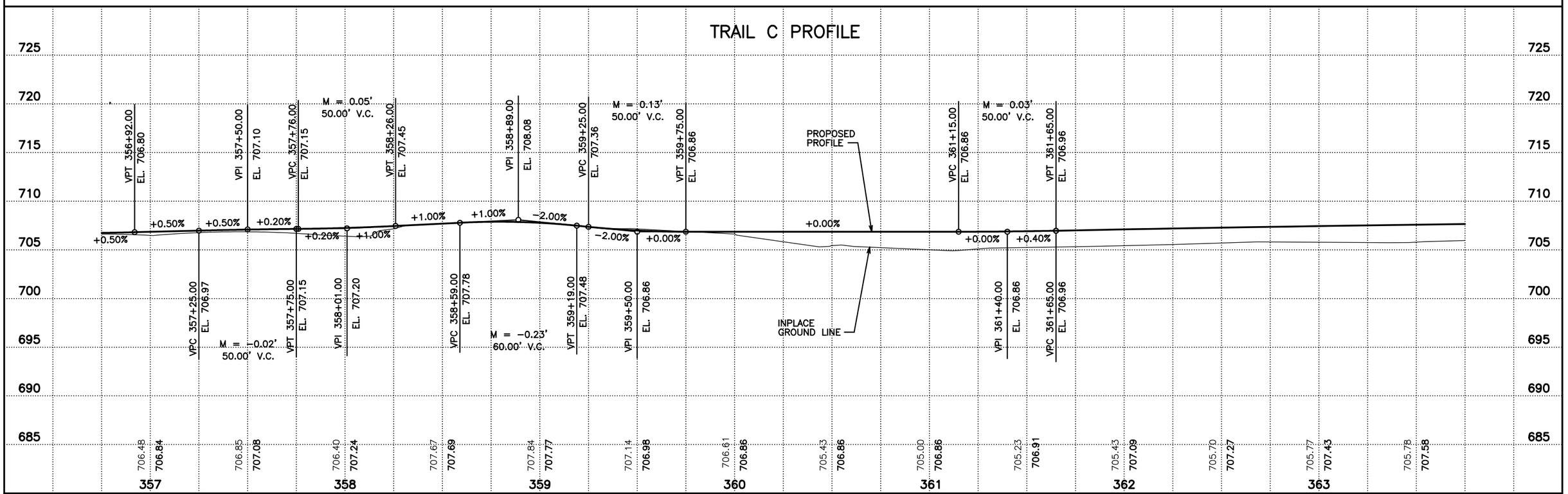
TRAIL C STA. 349+75 TO STA. 356+75

S.P. 164-090-014

SHEET NO. FP3 OF FP47

DATE: 12/8/2017 TIME: 3:36:05 PM
FILENAME: K:\n-z\StPaul-ParksRec_DakotaCo\15950_000_001\04_Production\01_CAD\Highway\Exhibit\Floodplain_Impacts\HISSP_fp_cp2p.dwg





NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

FLOODPLAIN IMPACT & MITIGATION

TRAIL C STA. 356+75 TO STA. 363+75

S.P. 164-090-014

SHEET NO. FP4 OF FP47

DATE: 12/8/2017 TIME: 3:36:07 PM
FILENAME: K:\n-z\StPaul-ParksRec_DakotaCo\15950_000_001\04_Production\01_CAD\Highway\Exhibit\Floodplain_Impacts\HISSP_fp_cp2q.dwg

City of Saint Paul

Ramsey County

SCALE IN FEET
0 25 50

MATCHLINE – TRAIL C STA. 363+75

MATCHLINE – TRAIL C STA. 370+75

EATON ST.

100-YEAR FLOODPLAIN ELEV. 706.3

℄ TRAIL C

METROPOLITAN AIRPORTS COMMISSION

CENTURYLINK

4" PEY-P

2" PEY-P

GAS

T-BUR

35" RCP

36" RCP

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

IMPACTS

FILL	806 CU YD
CUT	–0 CU YD
BALANCE	806 CU YD

THIS SHEET ONLY

- FLOODPLAIN FILL
- FLOODPLAIN CUT

TRAIL C PROFILE

VPI 366+65.00
EL. 708.96

+0.40%

–0.30%

PROPOSED PROFILE

INPLACE GROUND LINE

M = –0.88'
1,000.00' V.C.

364	365	366	367	368	369	370
705.78 / 707.58	706.07 / 707.70	706.73 / 707.81	706.56 / 707.90	706.68 / 707.98	706.70 / 708.03	706.77 / 708.07
706.98 / 708.10	707.22 / 708.10	707.18 / 708.09	706.93 / 708.05	706.90 / 708.01	706.55 / 707.94	706.26 / 707.86
706.41 / 707.76						

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

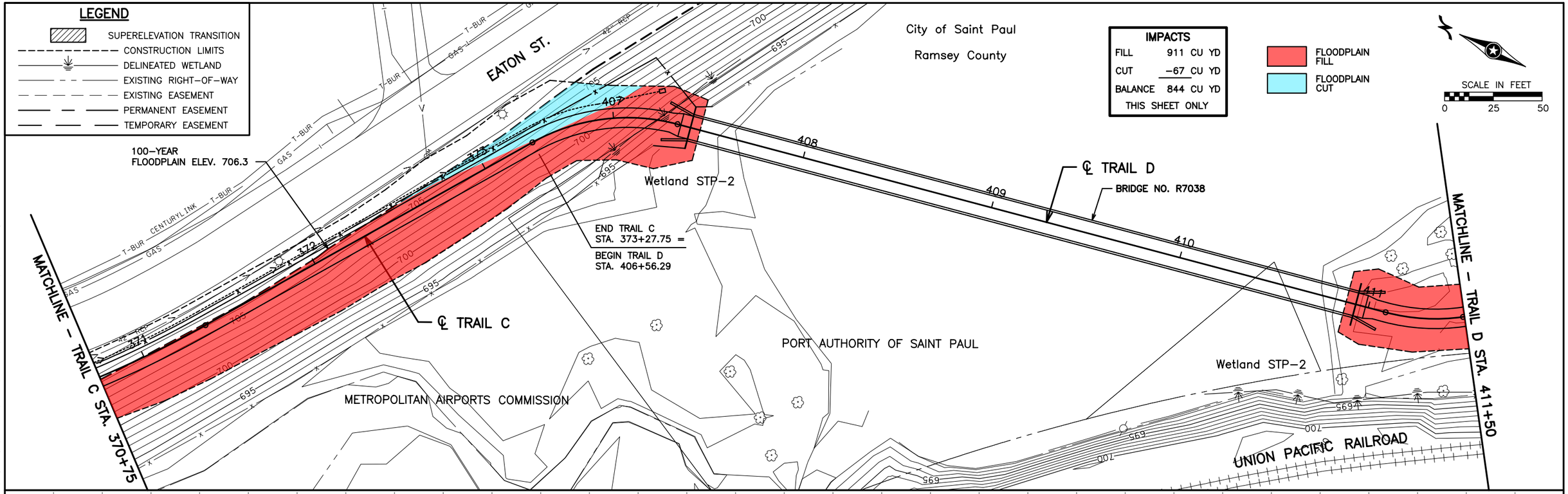
FLOODPLAIN IMPACT & MITIGATION

TRAIL C STA. 363+75 TO STA. 370+75

S.P. 164-090-014

SHEET NO. FP5 OF FP47

DATE: 12/8/2017 TIME: 3:36:09 PM
FILENAME: K:\n-z\StPaul-ParksRec_DakotaCo\15950_000_001\04_Production\01_CAD\Highway\Exhibit\Floodplain_Impacts\HISSP_fp_cp2r.dwg



NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

FLOODPLAIN IMPACT & MITIGATION
TRAIL C STA. 370+75 TO STA. 373+27.25
TRAIL D STA. 406+56.29 TO STA. 411+50

S.P. 164-090-014

SHEET NO. FP6 OF FP47

DATE: 12/8/2017 TIME: 3:36:11 PM
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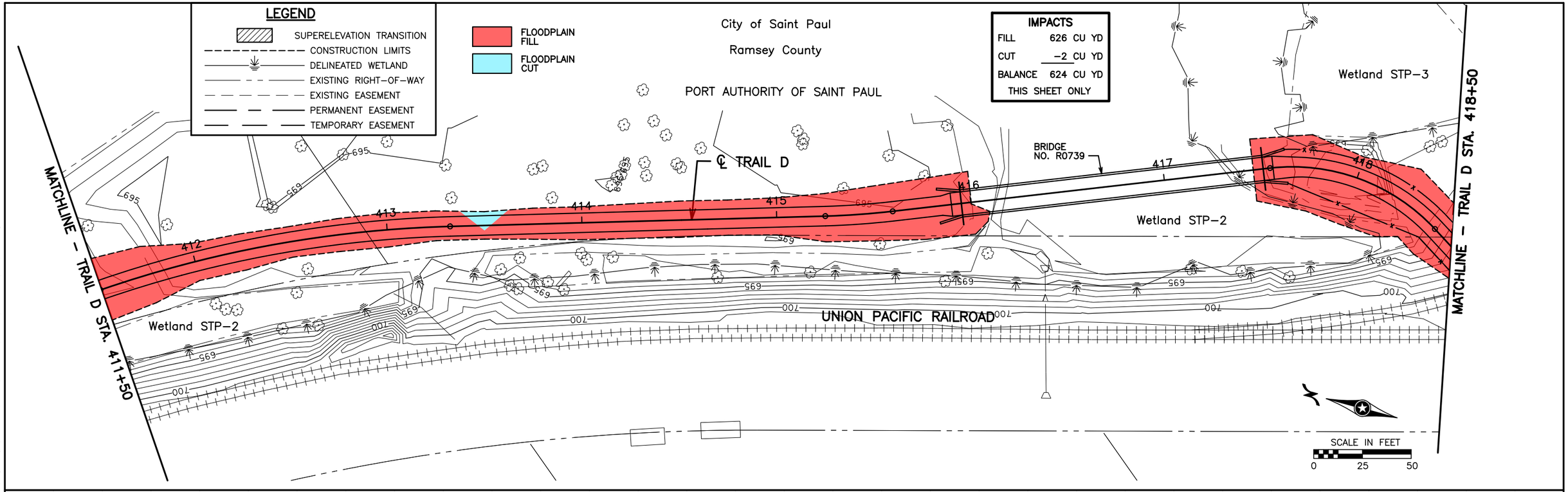

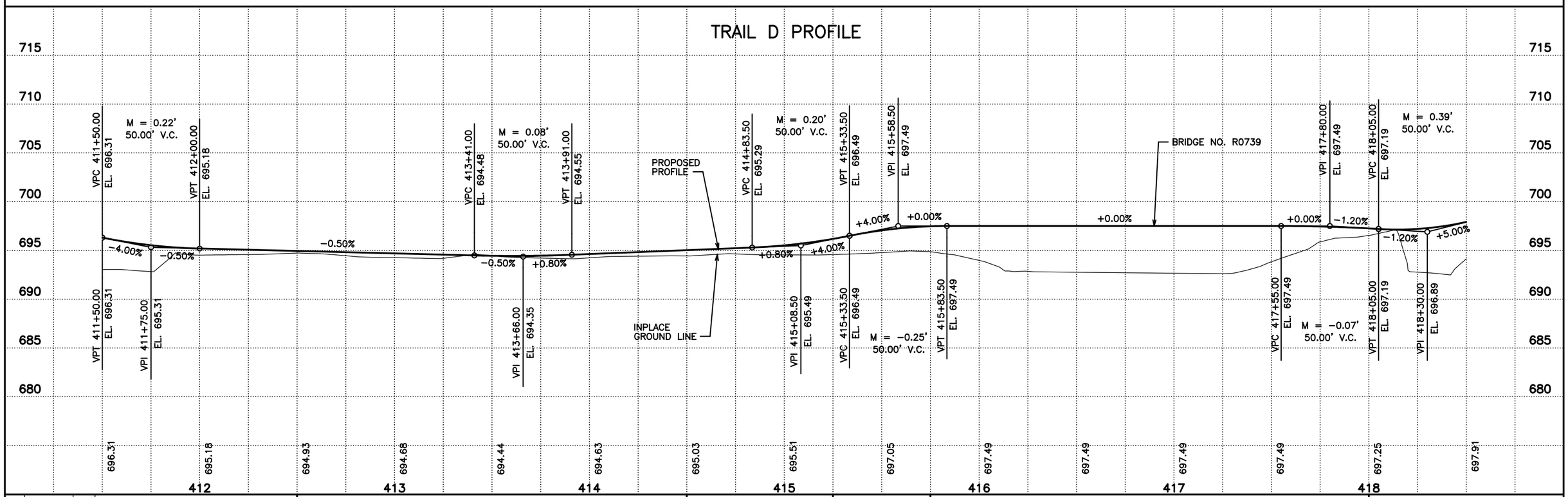

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM REGIONAL TRAIL

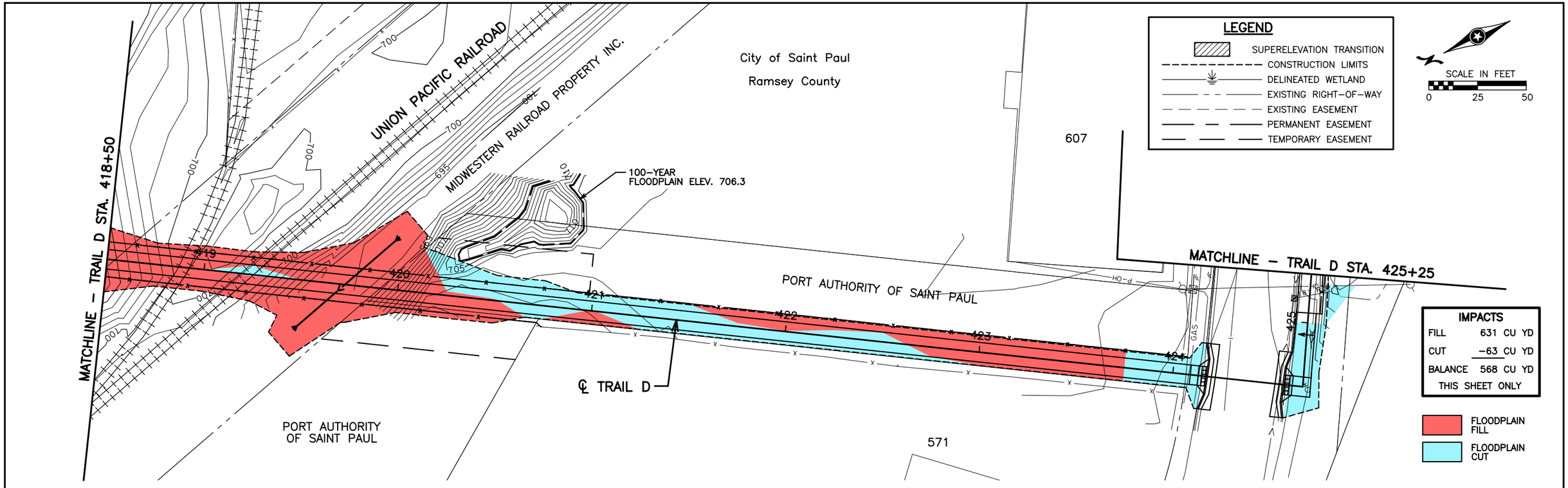
FLOODPLAIN IMPACT & MITIGATION

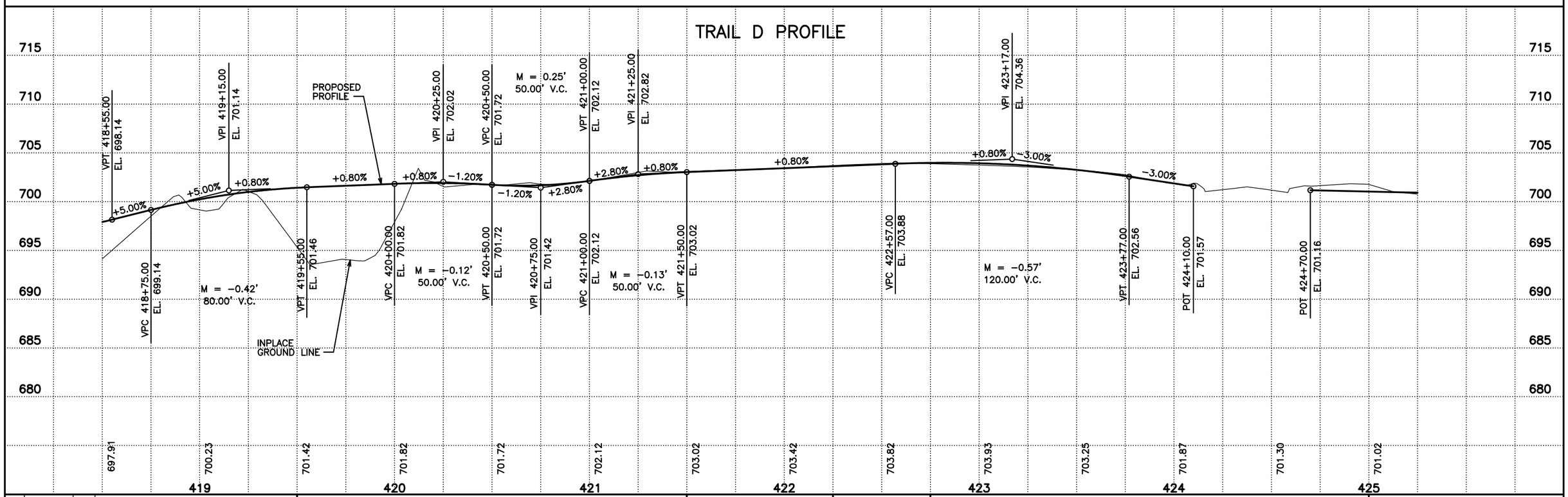
TRAIL D STA. 411+50 TO STA. 418+50

S.P. 164-090-014

SHEET NO. FP7 OF FP47

DATE: 12/8/2017 TIME: 3:36:13 PM
FILENAME: K:\n-z\StPaul-ParksRec_DakotaCo\15950_000_001\04_Production\01_CAD\Highway\Exhibit\Floodplain_Impacts\HISSP_fp_cp2t.dwg





NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

FLOODPLAIN IMPACT & MITIGATION
TRAIL D STA. 418+50 TO STA. 425+25

S.P. 164-090-014

SHEET NO. FP8 OF FP47

DATE: 12/8/2017 TIME: 3:36:15 PM
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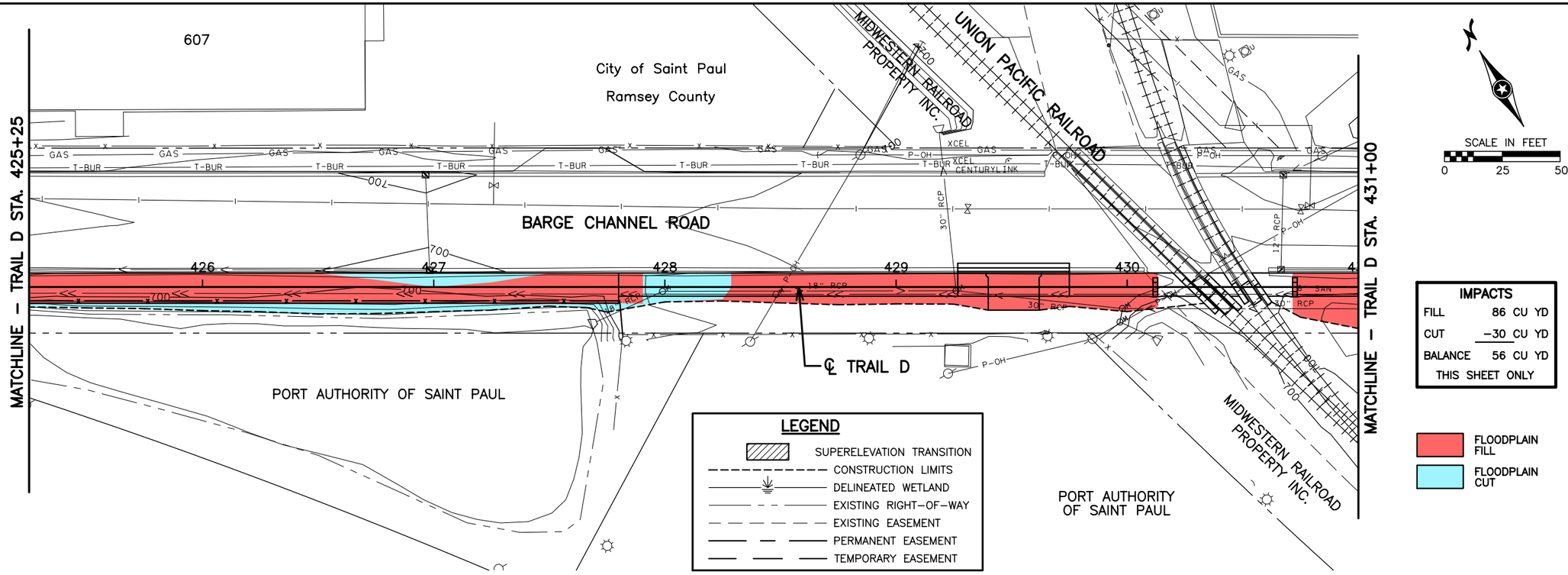

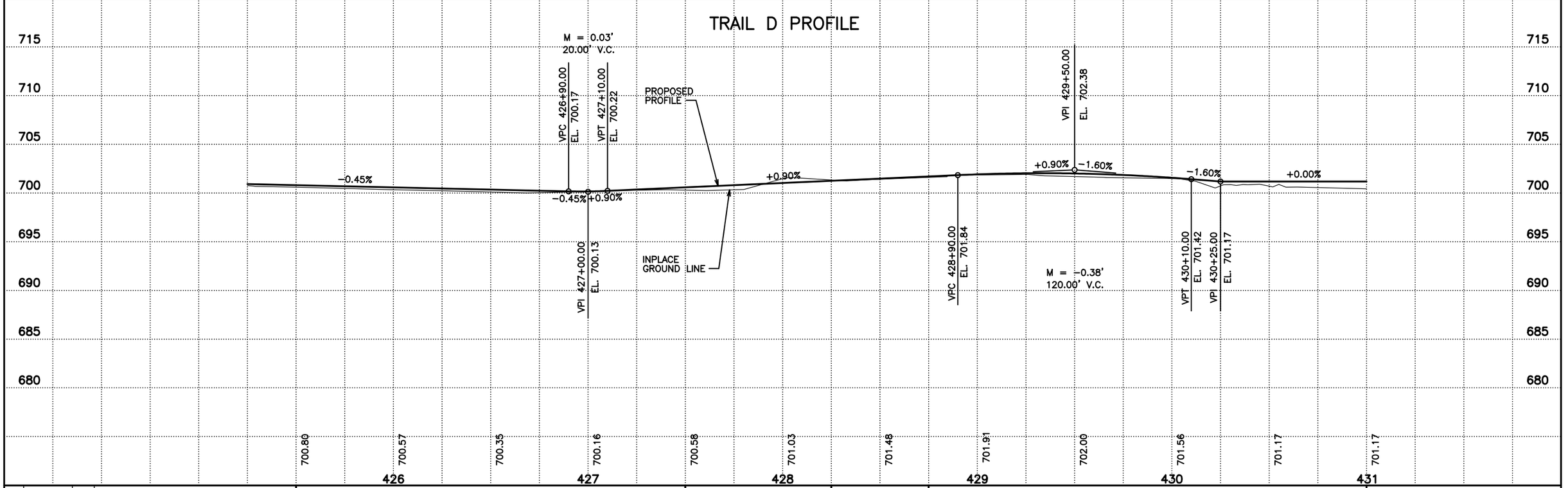

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NO.	DATE	BY	DESCRIPTION OF REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: _____
DATE: _____ LIC. NO. _____

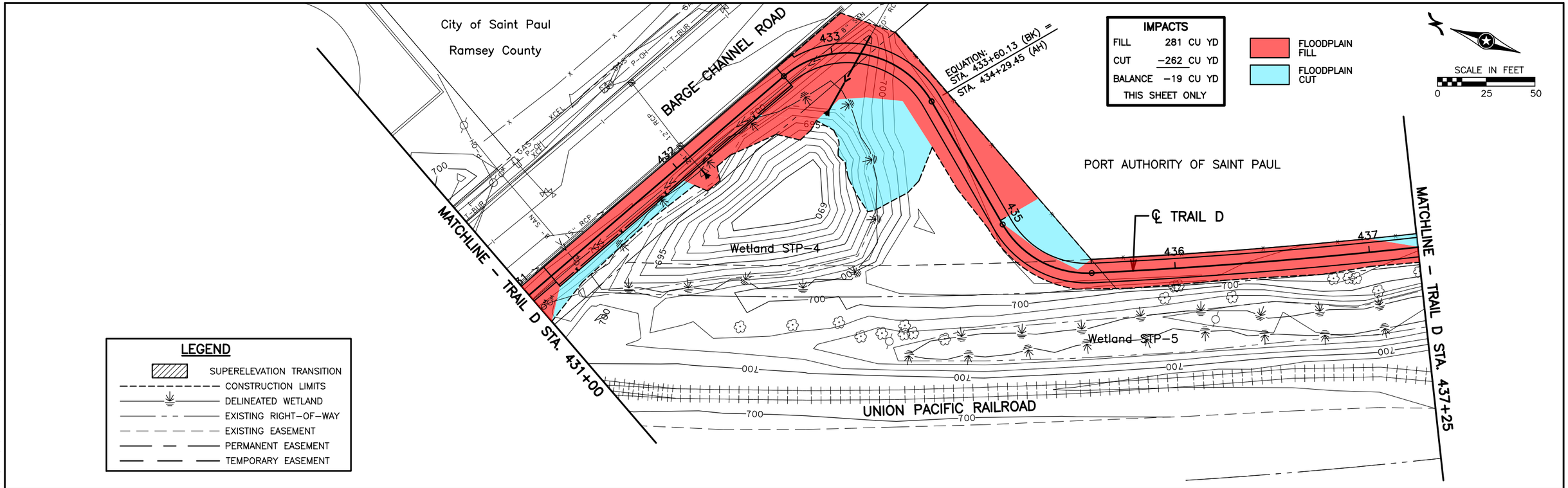
TKDA

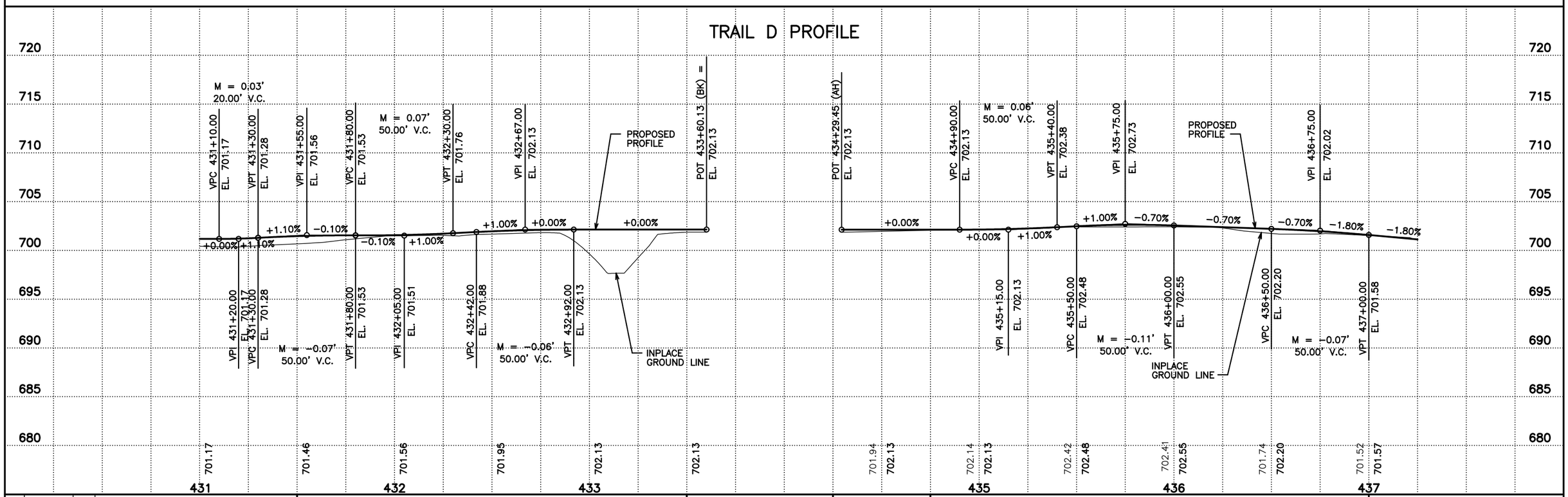
ROBERT PIRAM
REGIONAL TRAIL

FLOODPLAIN IMPACT & MITIGATION
TRAIL D STA. 425+25 TO STA. 431+00

S.P. 164–090–014

SHEET NO. FP9 OF FP47





NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____
DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

FLOODPLAIN IMPACT & MITIGATION

TRAIL D STA. 431+00 TO STA. 437+25

S.P. 164-090-014

SHEET NO. FP10 OF FP47

DATE: 12/8/2017 TIME: 3:36:19 PM
FILENAME: K:\n-z\StPaul-ParksRec_DakotaCo\15950_000_001\04_Production\01_CAD\Highway\Exhibit\Floodplain_Impacts\HISSP_fp_cp2w.dwg

LEGEND

- SUPERELEVATION TRANSITION
- CONSTRUCTION LIMITS
- DELINEATED WETLAND
- EXISTING RIGHT–OF–WAY
- EXISTING EASEMENT
- PERMANENT EASEMENT
- TEMPORARY EASEMENT

City of Saint Paul

Ramsey County

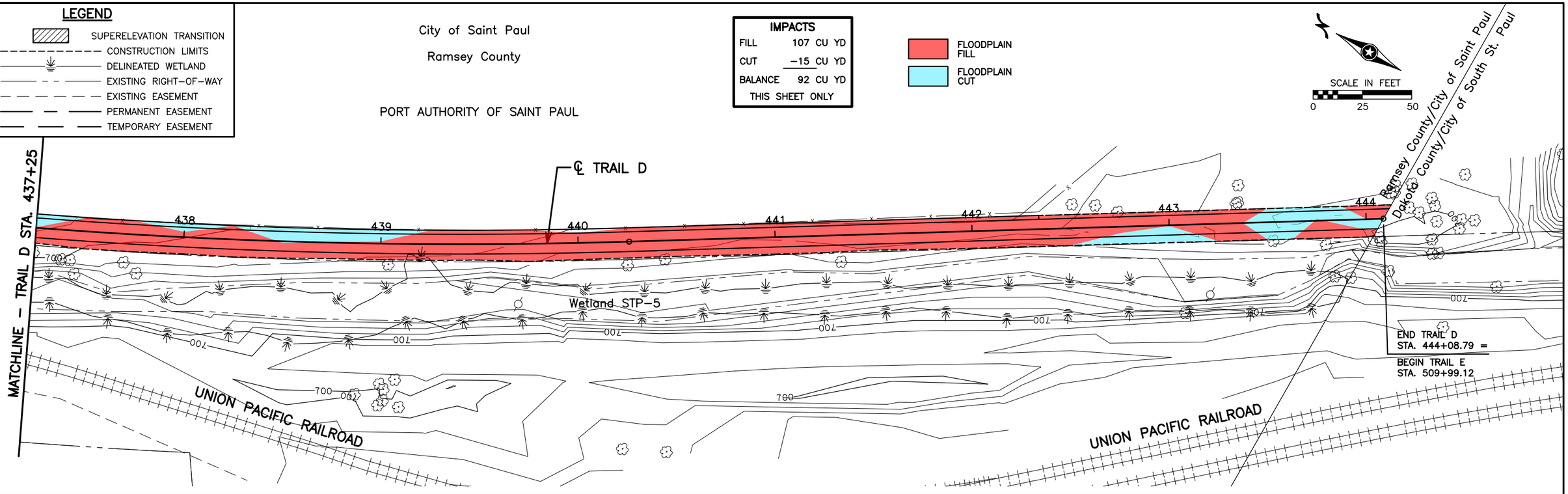
PORT AUTHORITY OF SAINT PAUL

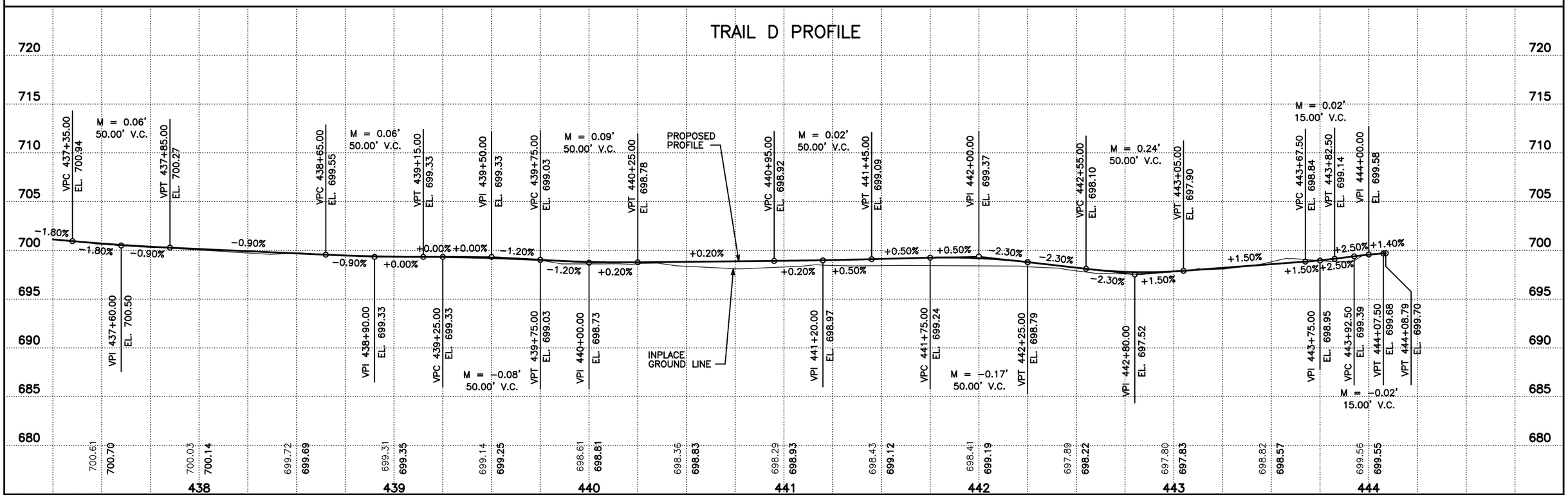
IMPACTS	
FILL	107 CU YD
CUT	–15 CU YD
BALANCE	92 CU YD
THIS SHEET ONLY	

FLOODPLAIN FILL

FLOODPLAIN CUT

SCALE IN FEET
0 25 50





NO.	DATE	BY	DESCRIPTION OF REVISIONS

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PRINTED NAME: _____

DATE: _____ LIC. NO. _____

TKDA

ROBERT PIRAM
REGIONAL TRAIL

FLOODPLAIN IMPACT & MITIGATION

TRAIL D STA. 437+25 TO STA. 444+08.79

S.P. 164–090–014

SHEET NO. FP11 OF FP47

DATE: 12/8/2017 TIME: 3:36:21 PM
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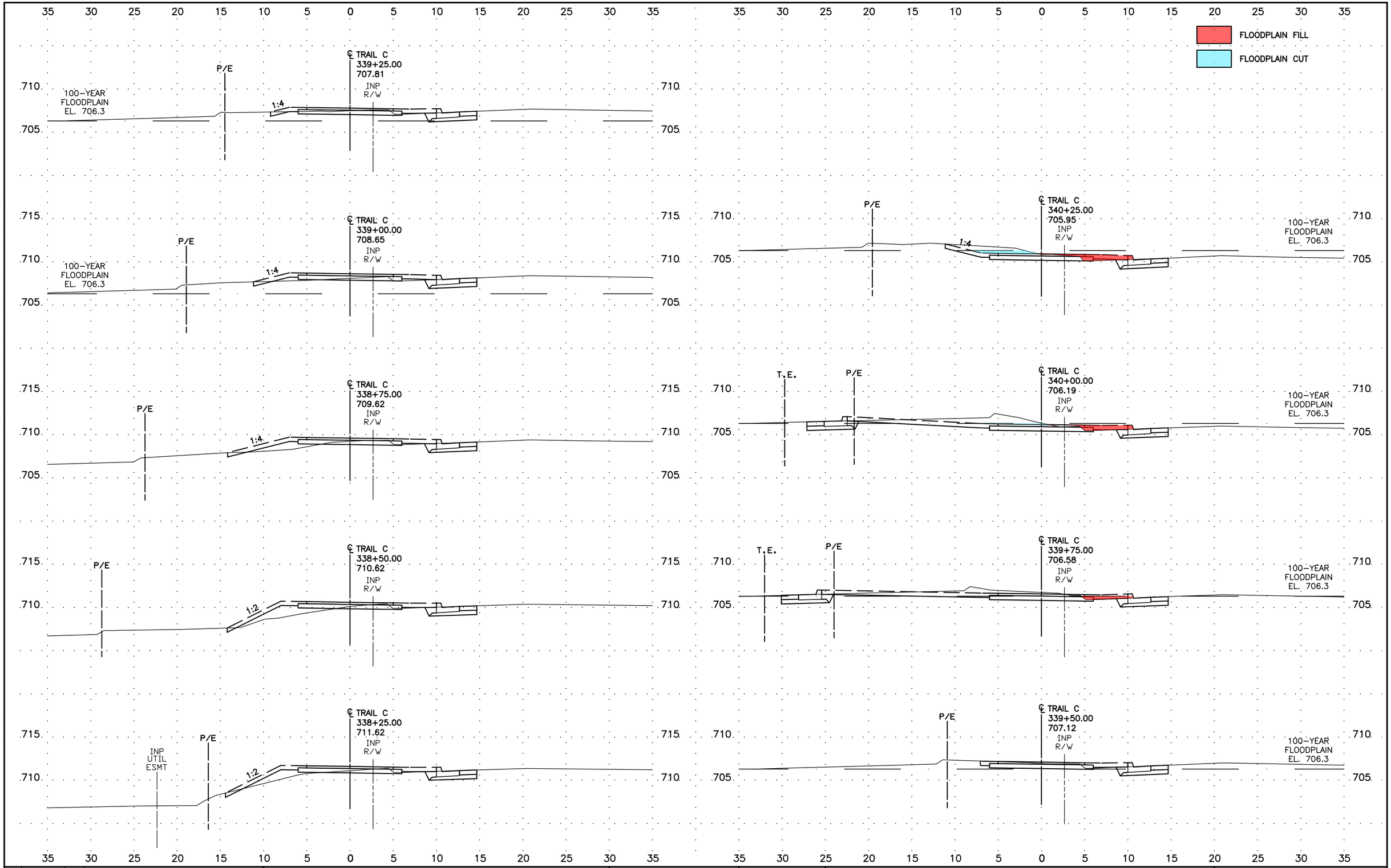

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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

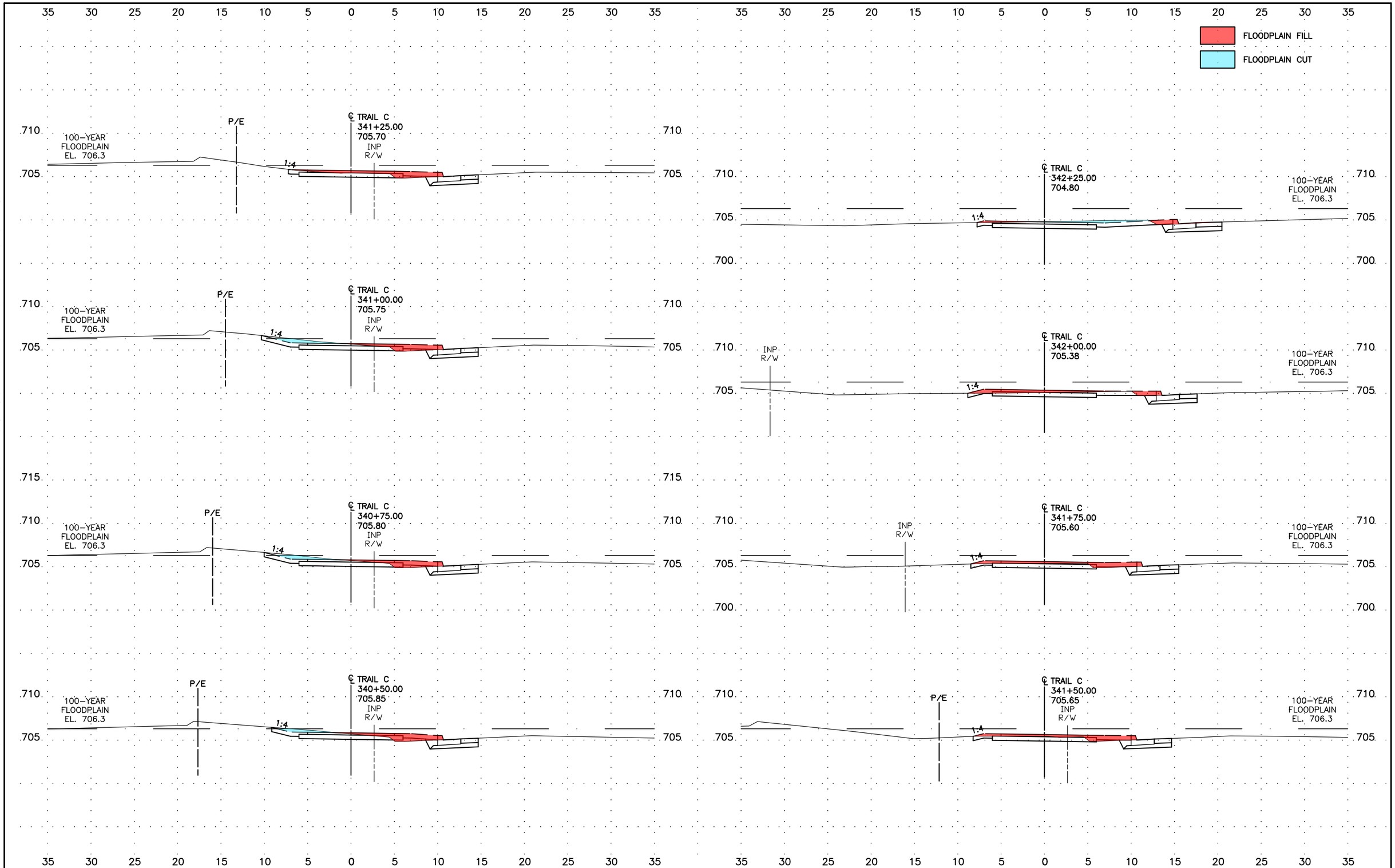
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 338+25 TO STA. 340+25

S.P. 164-090-014

SHEET NO. **FP12** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

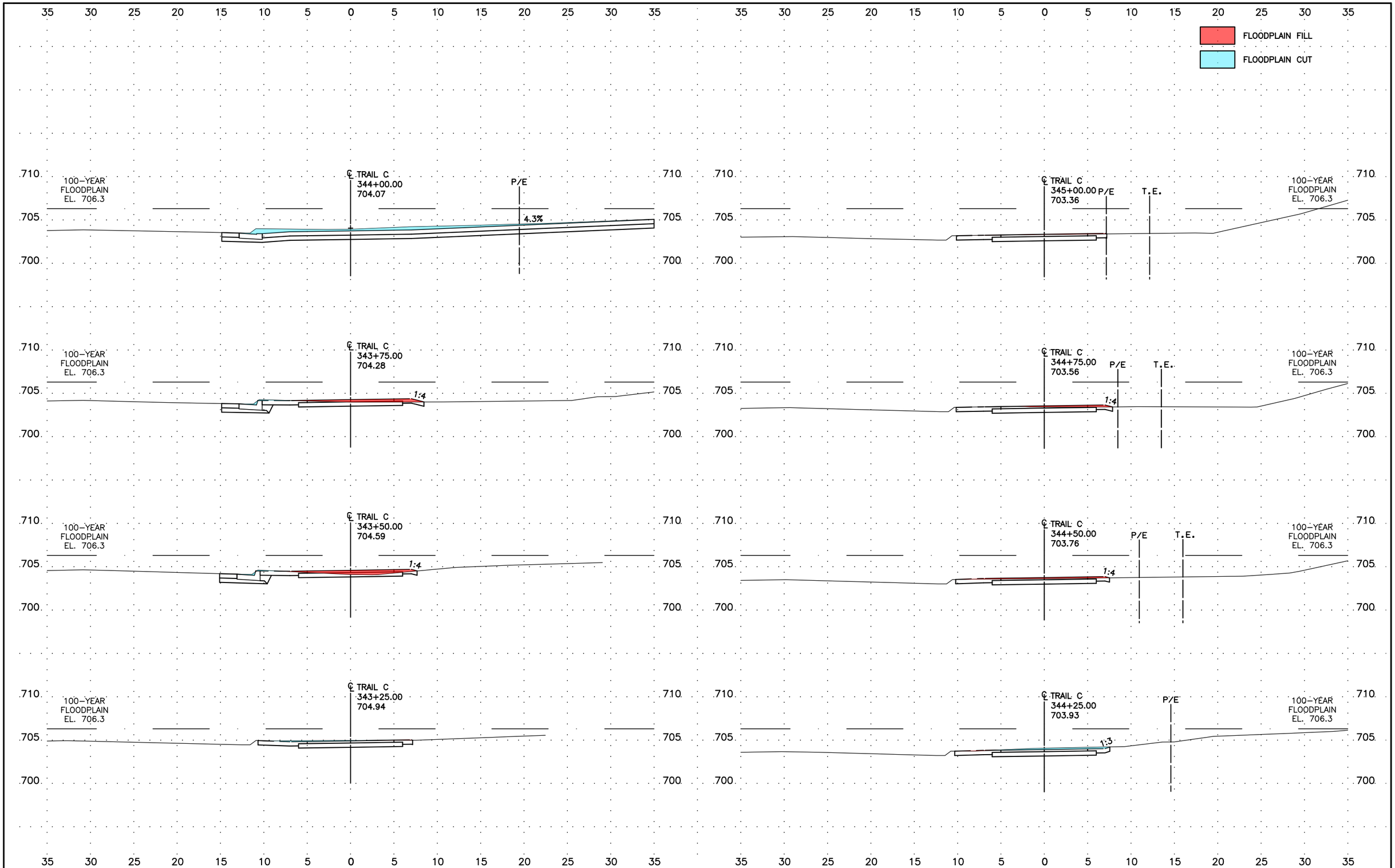
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 340+50 TO STA. 342+25

S.P. 164-090-014

SHEET NO. **FP13** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

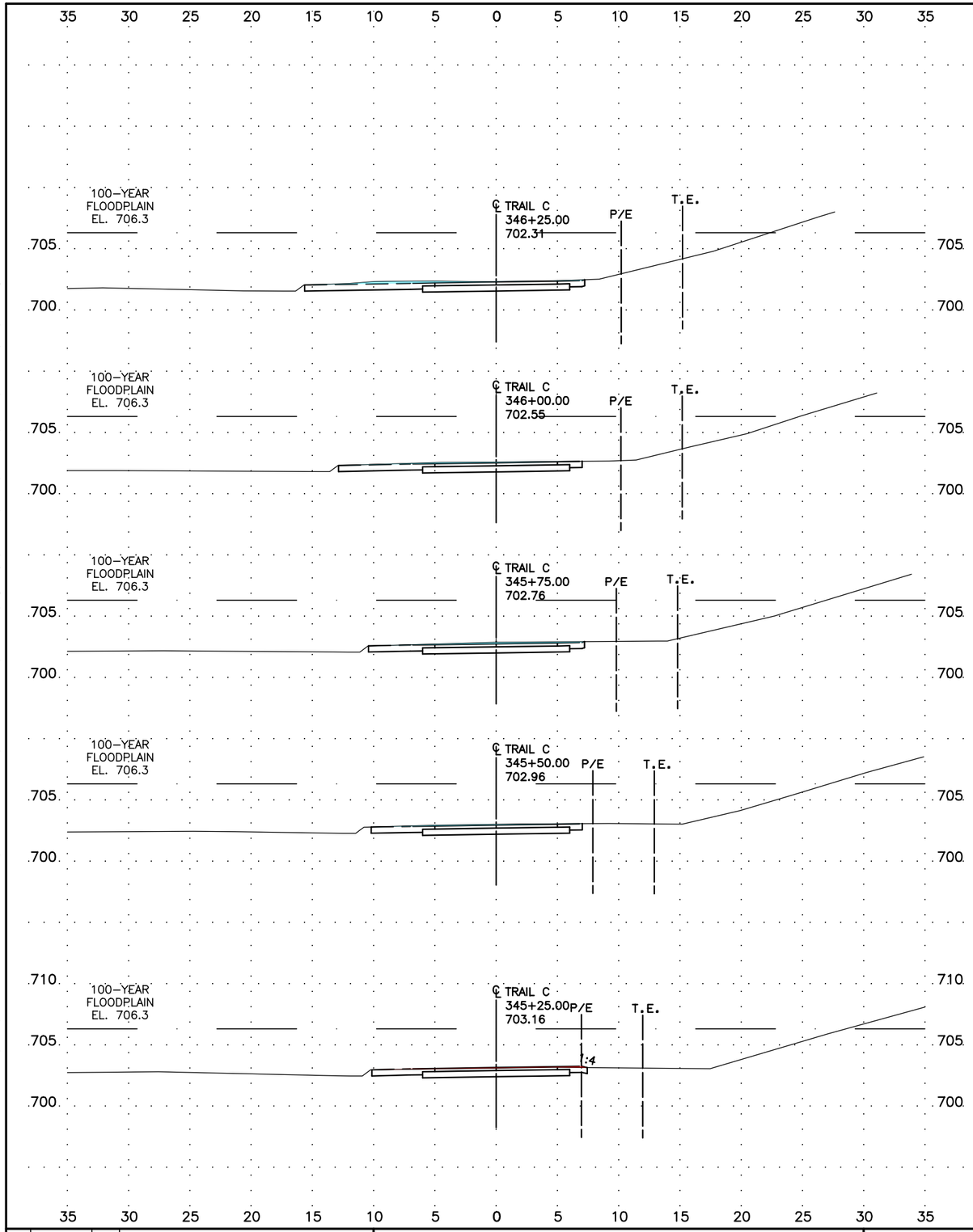
ROBERT PIRAM REGIONAL TRAIL

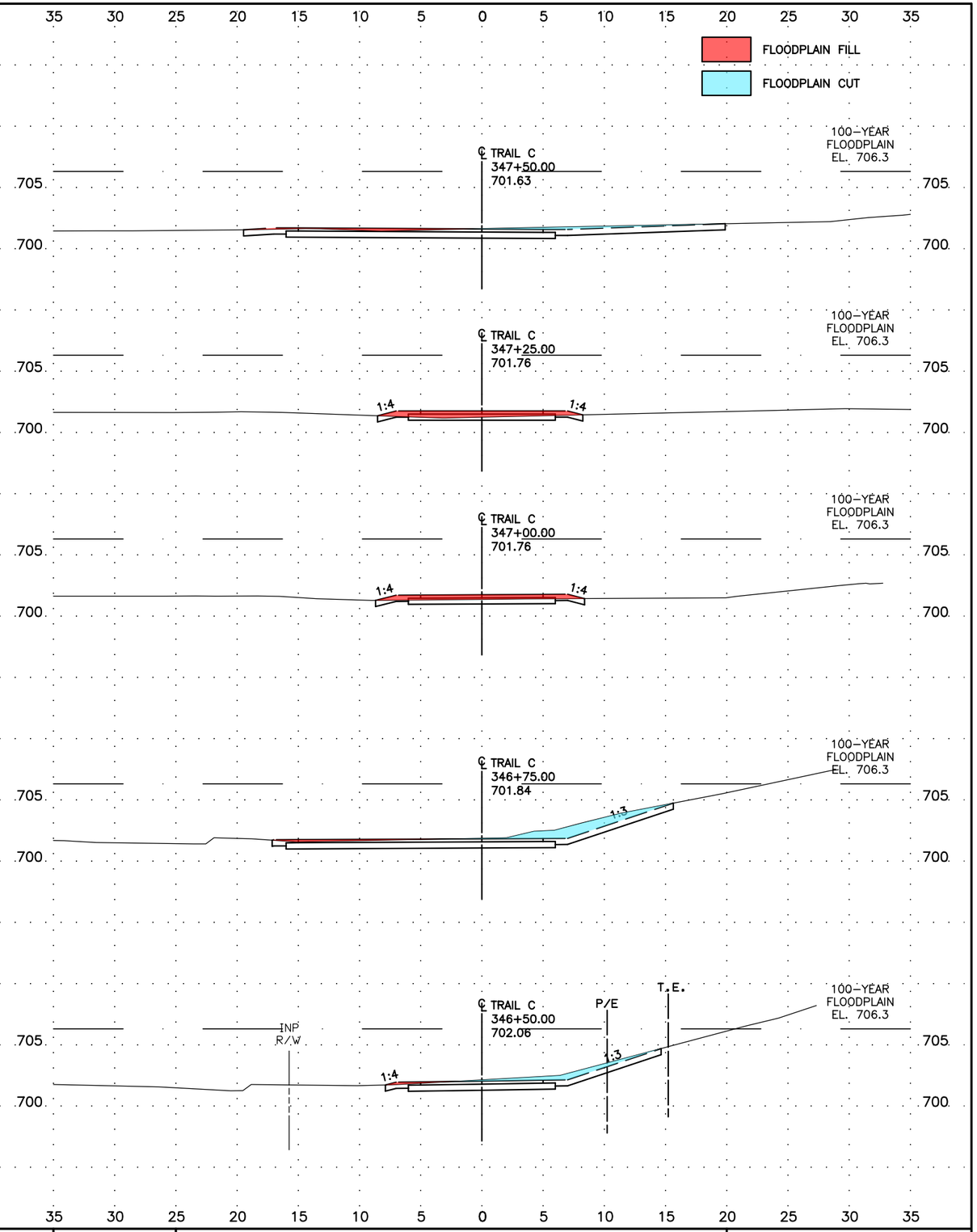
CROSS SECTIONS

TRAIL C STA. 343+25 TO STA. 345+00

S.P. 164-090-014

SHEET NO. **FP14** OF **FP47**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

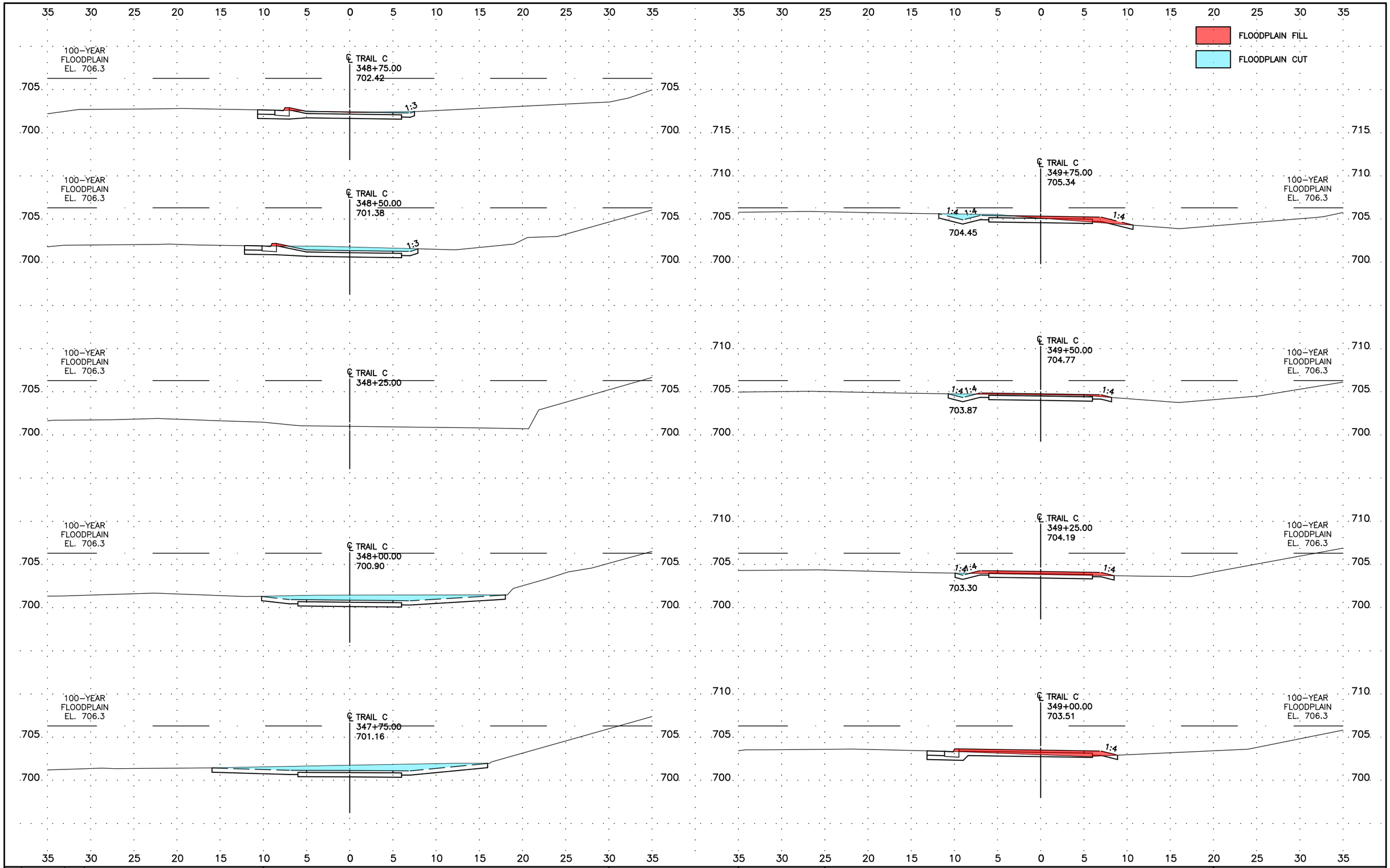
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 345+25 TO STA. 347+50

S.P. 164–090–014

SHEET NO. **FP15** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

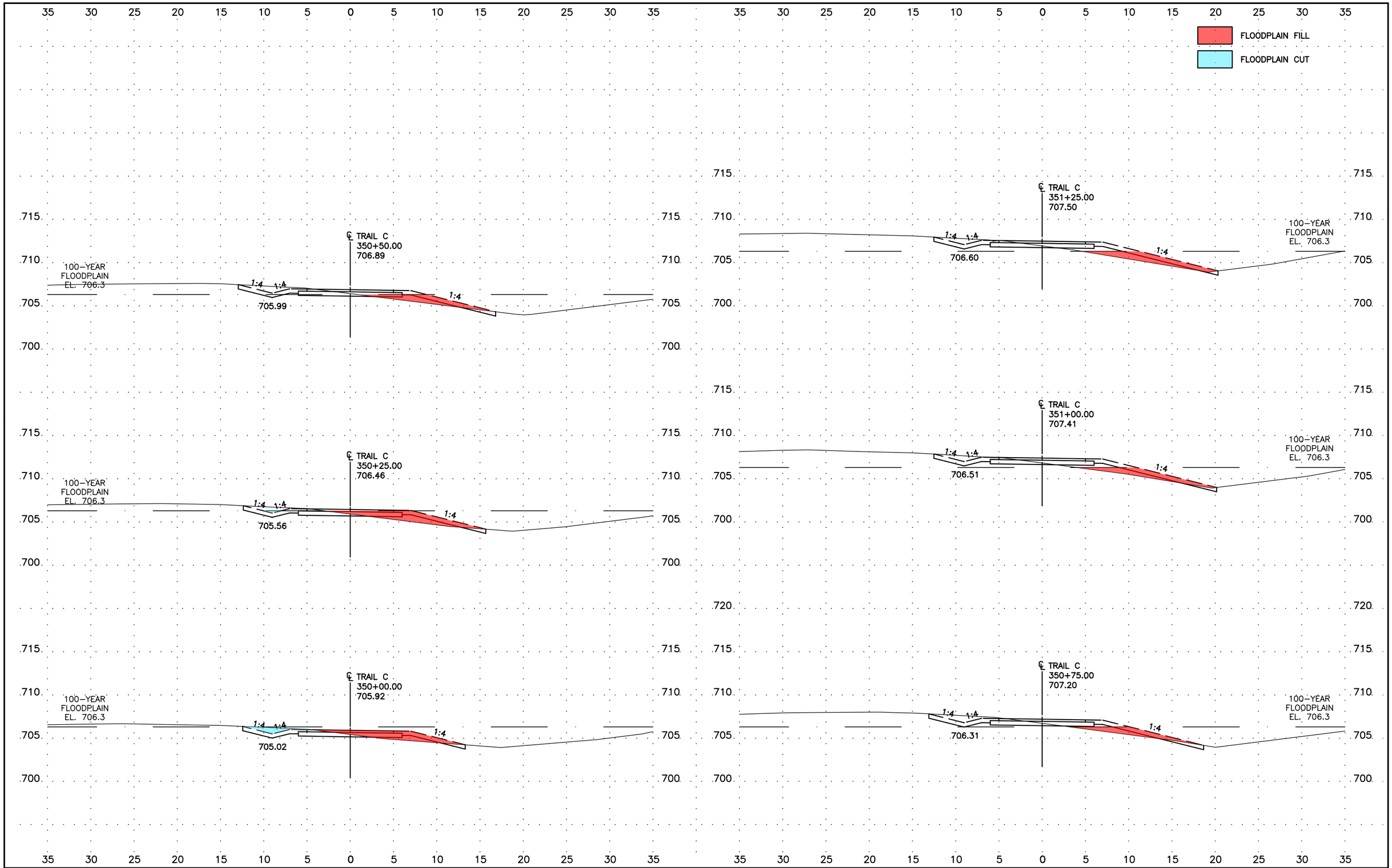
ROBERT PIRAM REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 347+75 TO STA. 349+75

S.P. 164-090-014

SHEET NO. **FP16** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

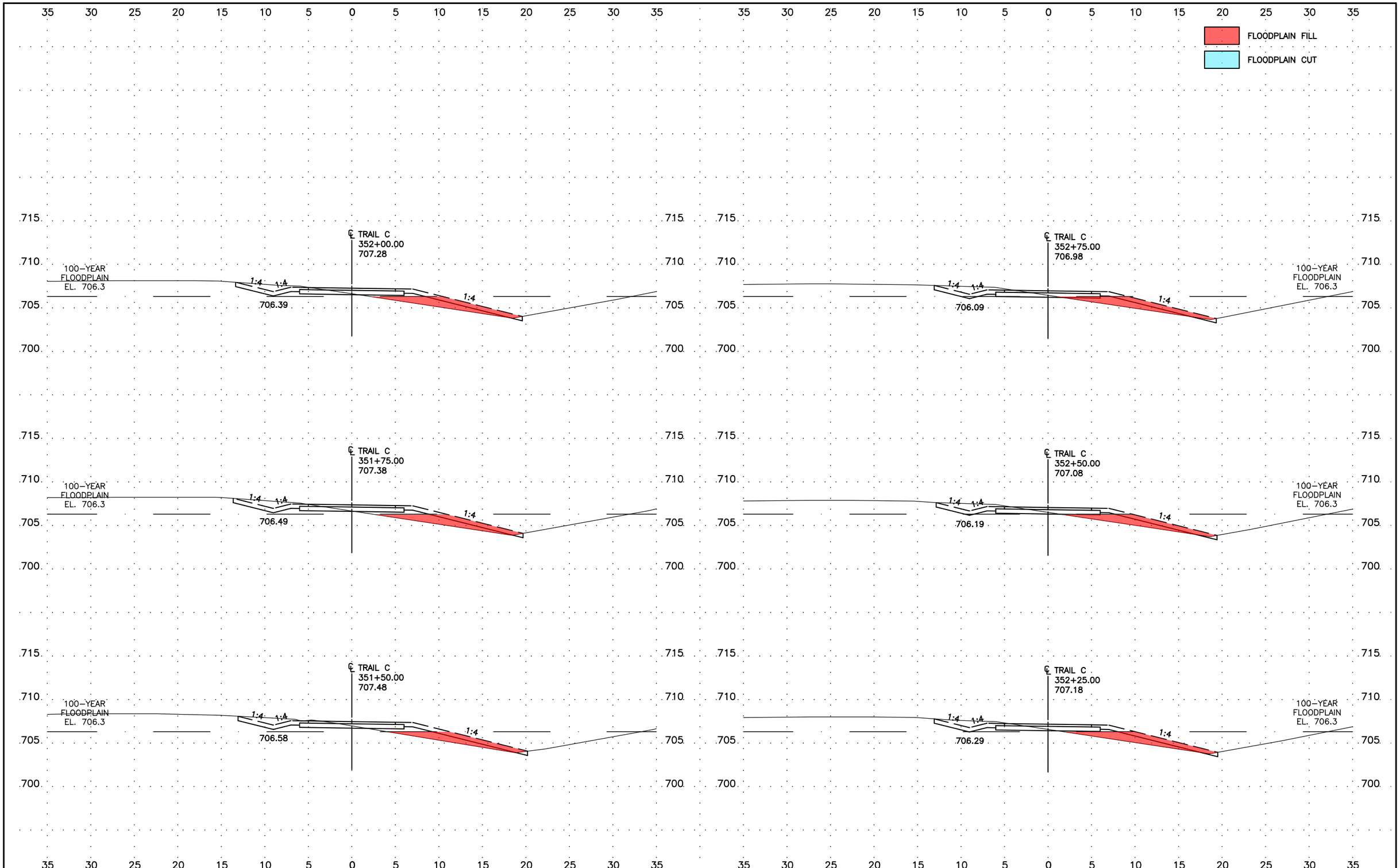
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 350+00 TO STA. 351+25

S.P. 164–090–014

SHEET NO. **FP17** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

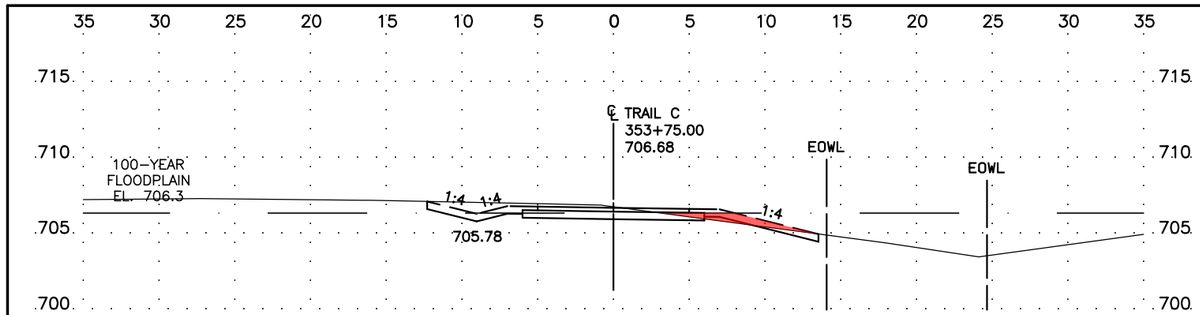
ROBERT PIRAM
REGIONAL TRAIL

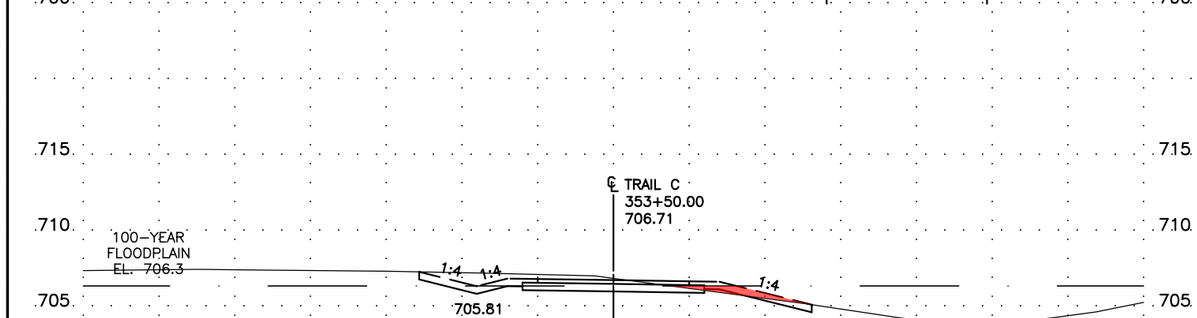
CROSS SECTIONS

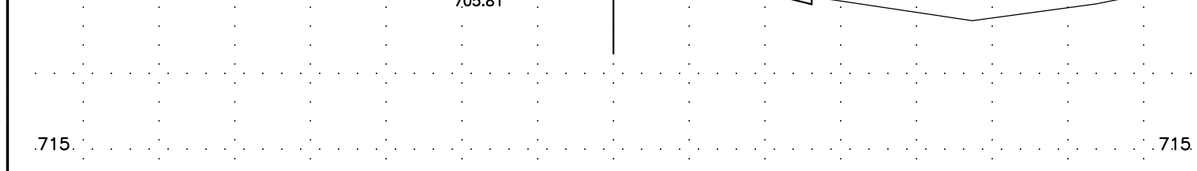
TRAIL C STA. 351+50 TO STA. 352+75

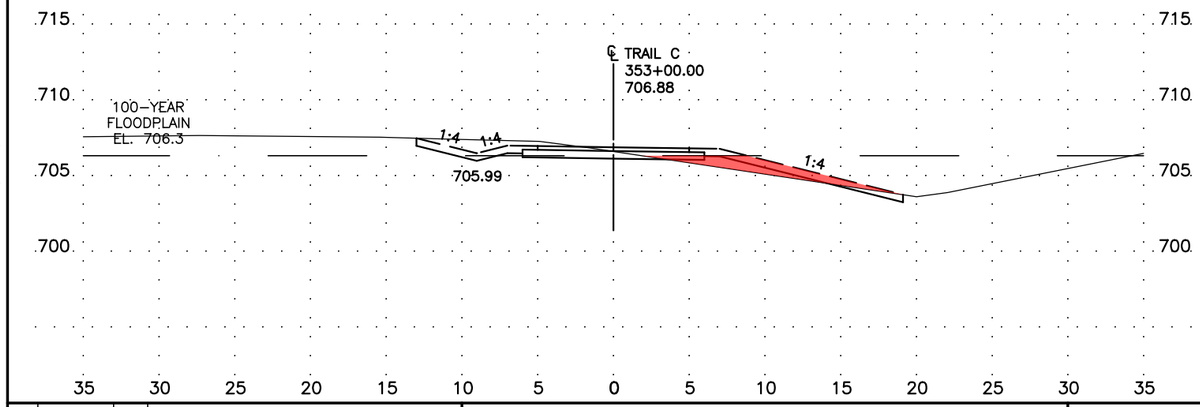
S.P. 164–090–014

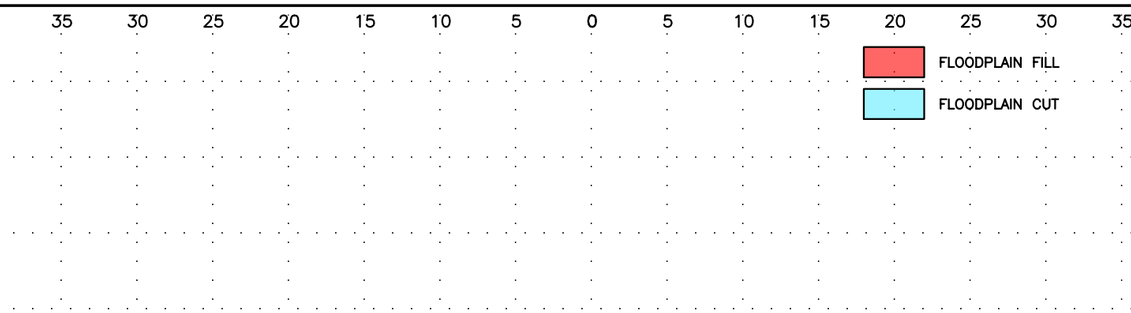
SHEET NO. **FP18** OF **FP47**

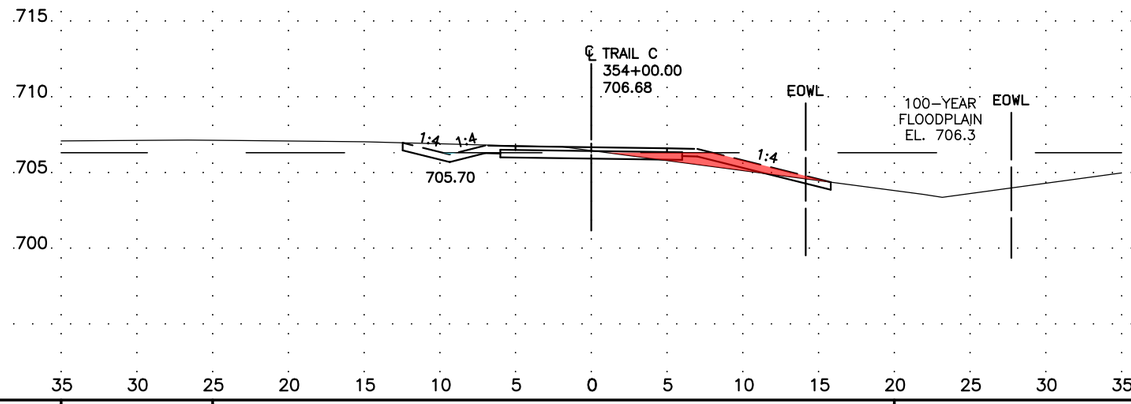












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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

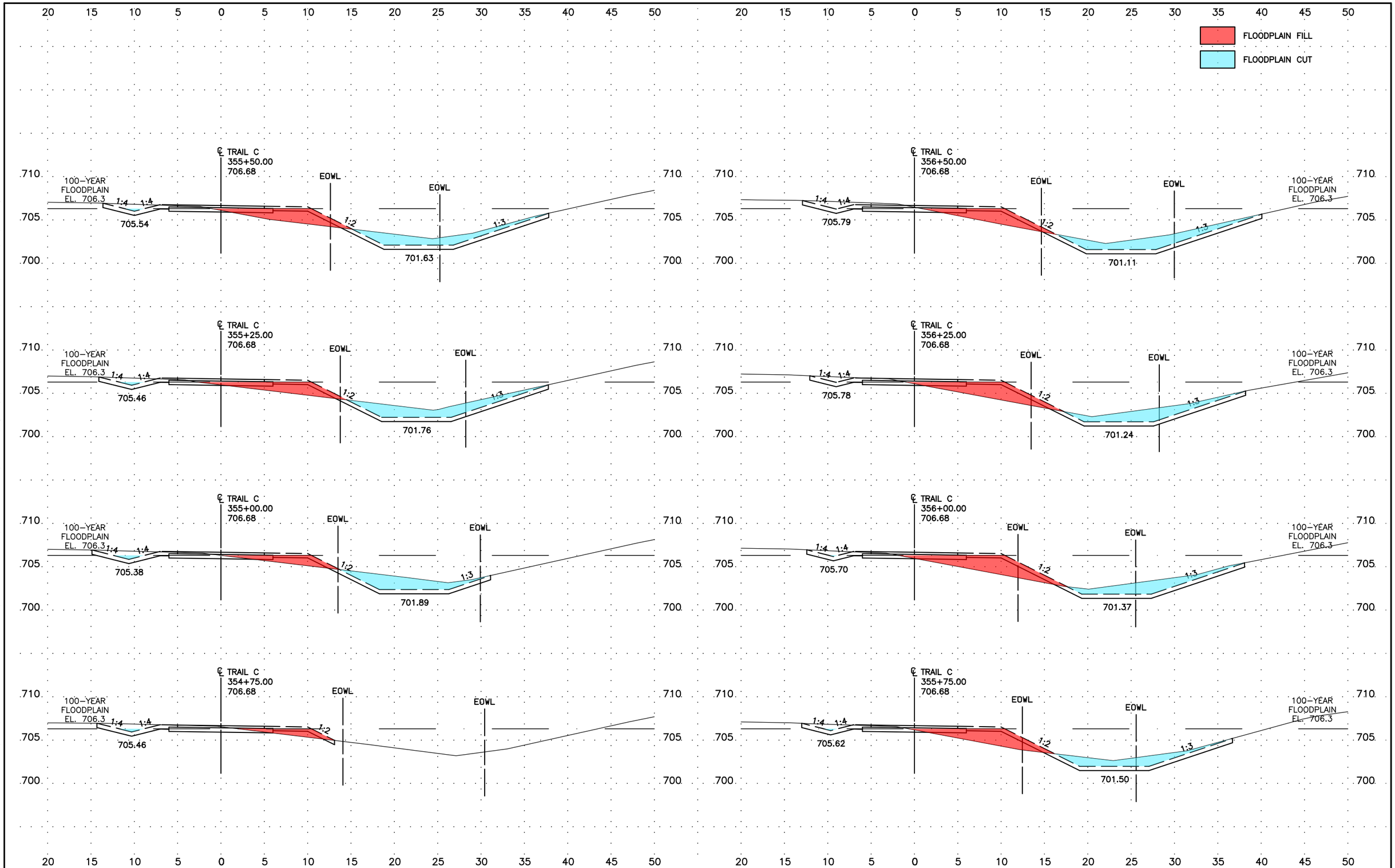
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 353+00 TO STA. 354+50

S.P. 164-090-014

SHEET NO. **FP19** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

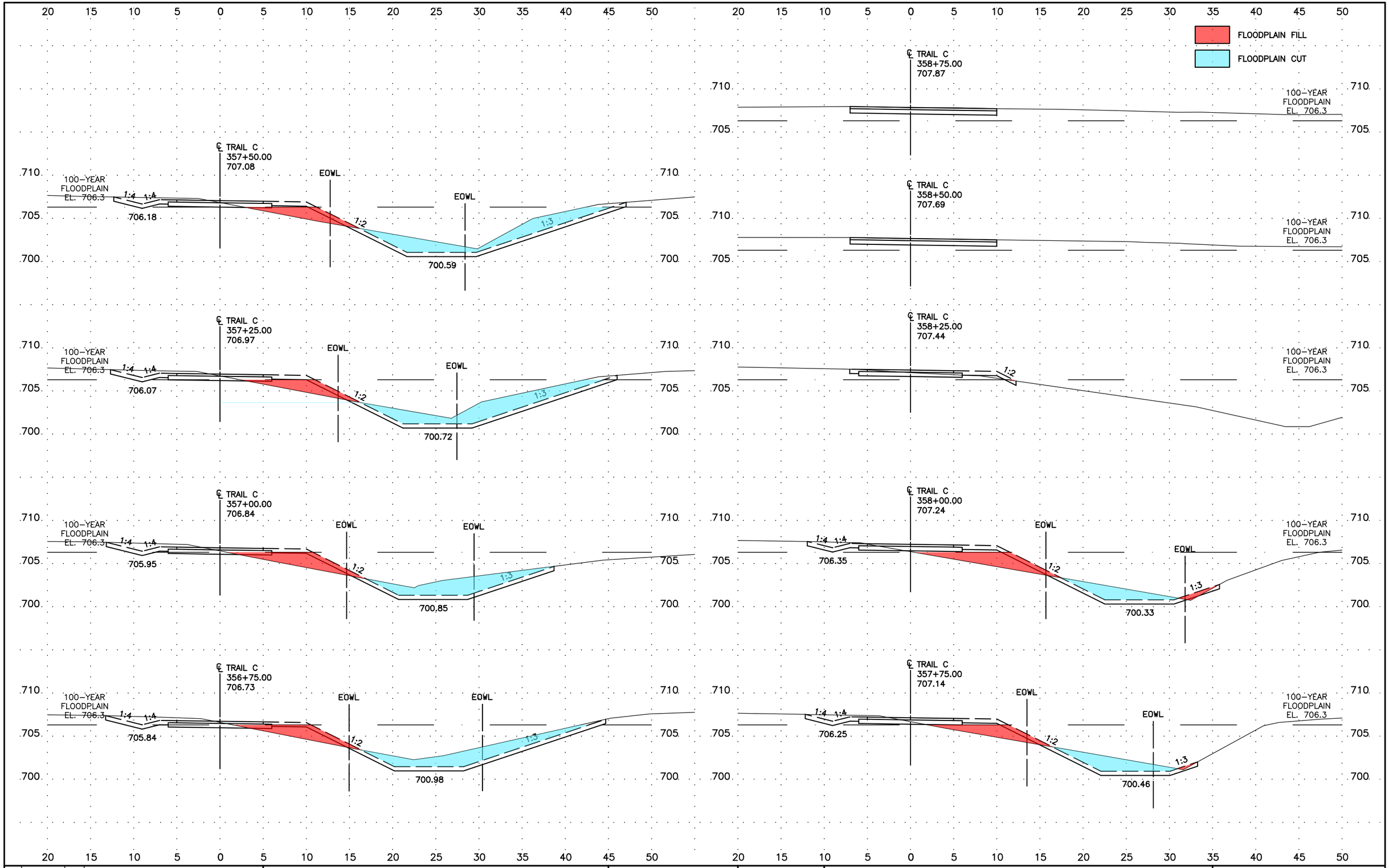
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 354+75 TO STA. 356+50

S.P. 164–090–014

SHEET NO. **FP20** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

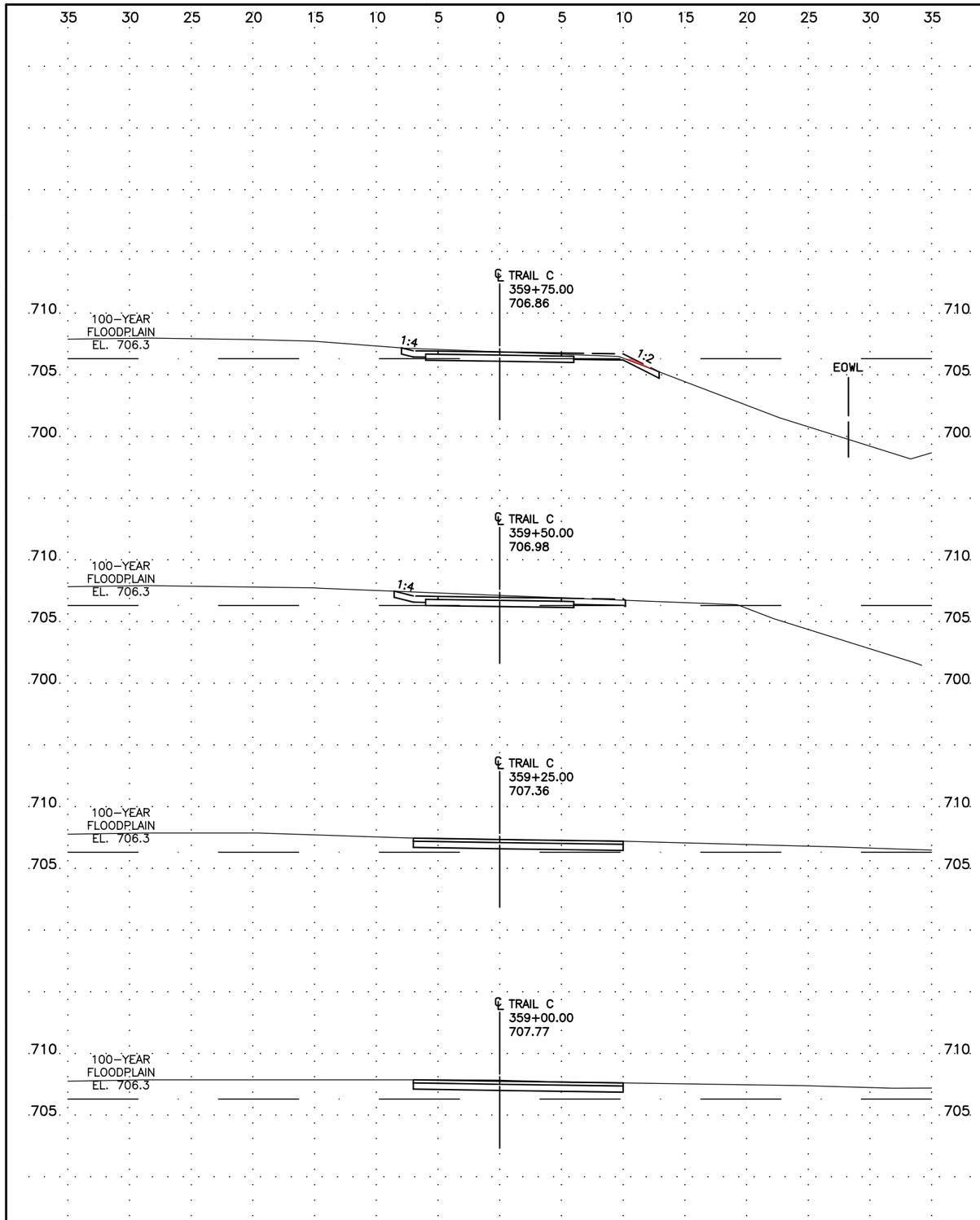
ROBERT PIRAM
REGIONAL TRAIL

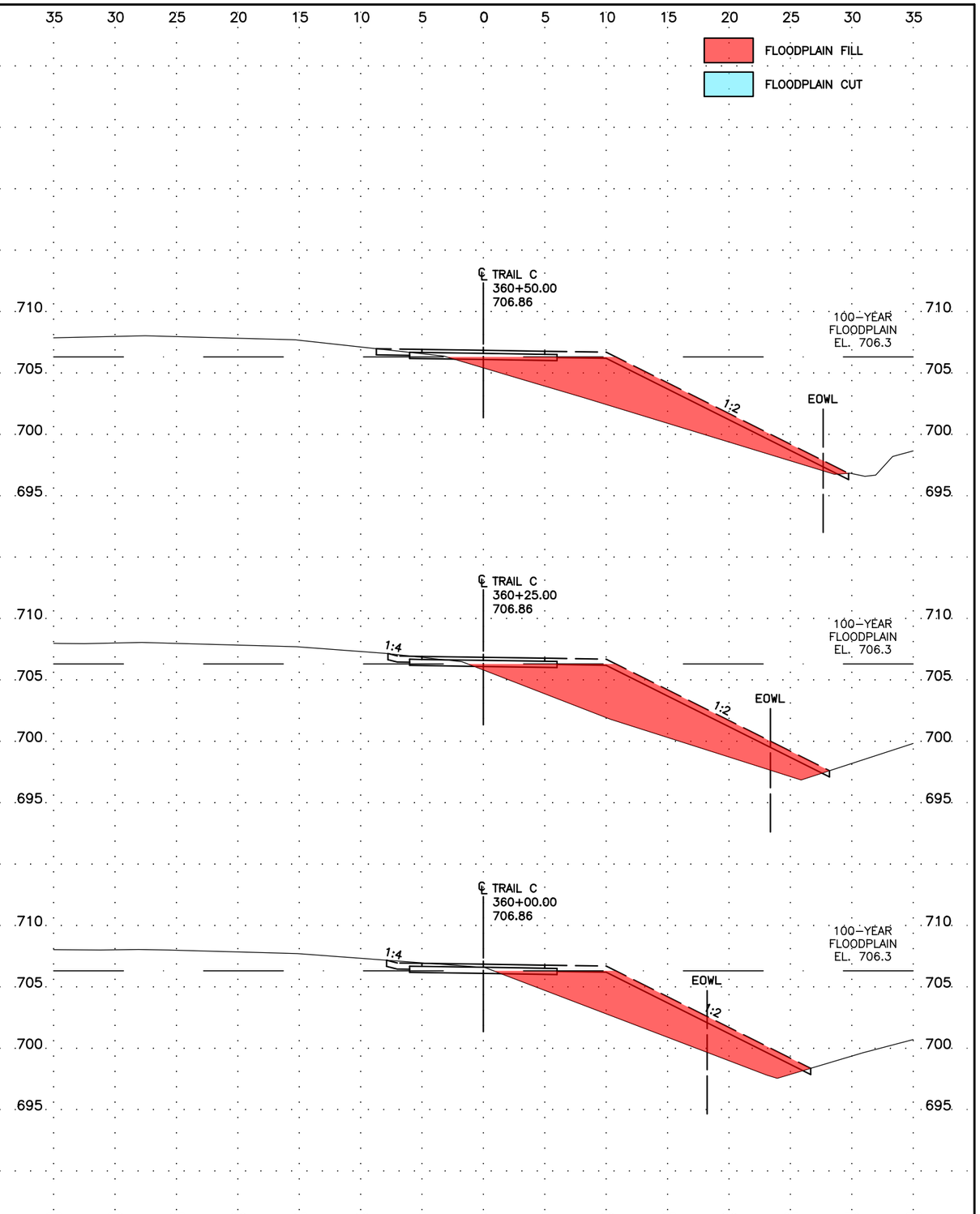
CROSS SECTIONS

TRAIL C STA. 356+75 TO STA. 358+75

S.P. 164–090–014

SHEET NO. **FP21** OF **FP47**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

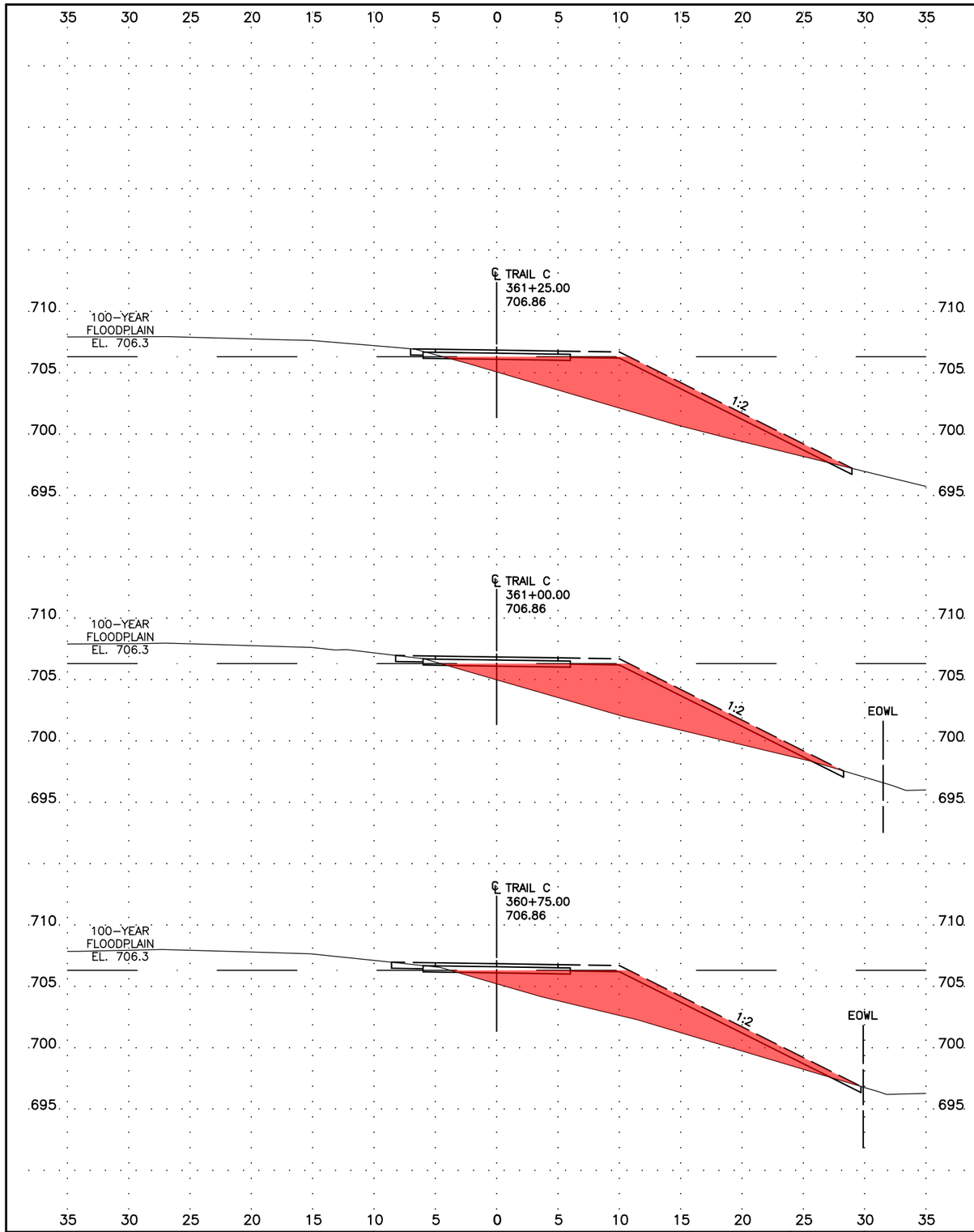
ROBERT PIRAM
REGIONAL TRAIL

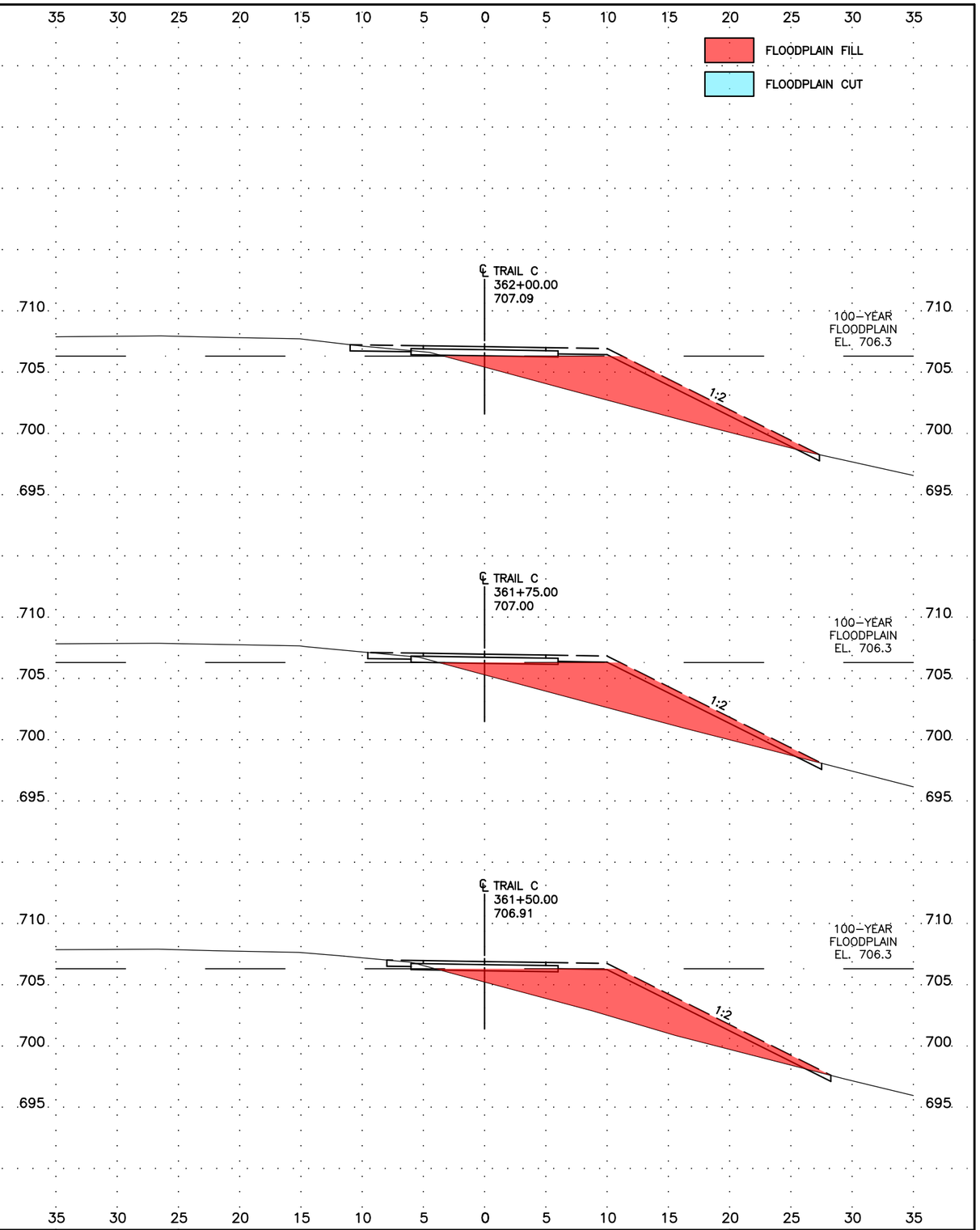
CROSS SECTIONS

TRAIL C STA. 359+00 TO STA. 360+50

S.P. 164–090–014

SHEET NO. **FP22** OF **FP47**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

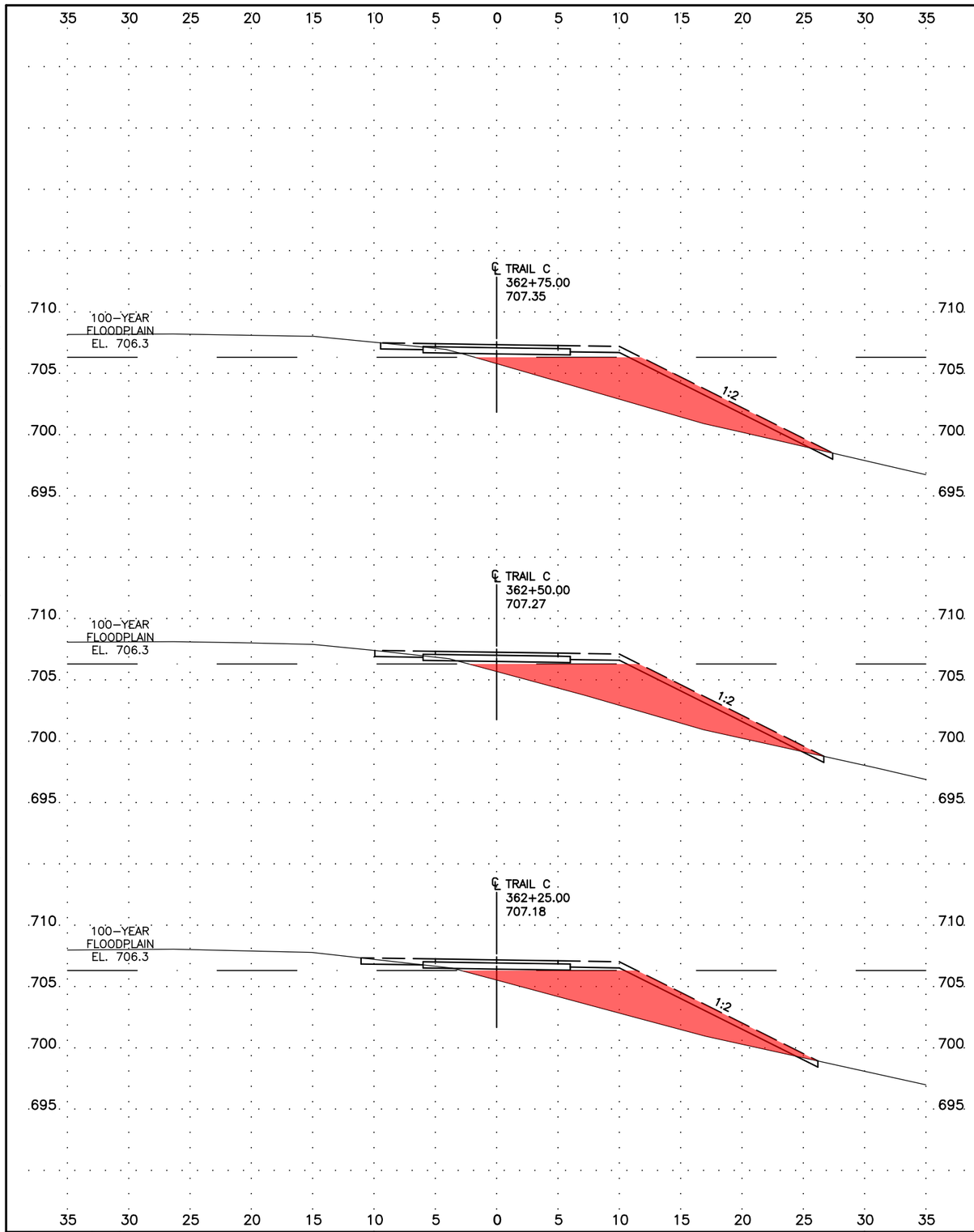
ROBERT PIRAM
REGIONAL TRAIL

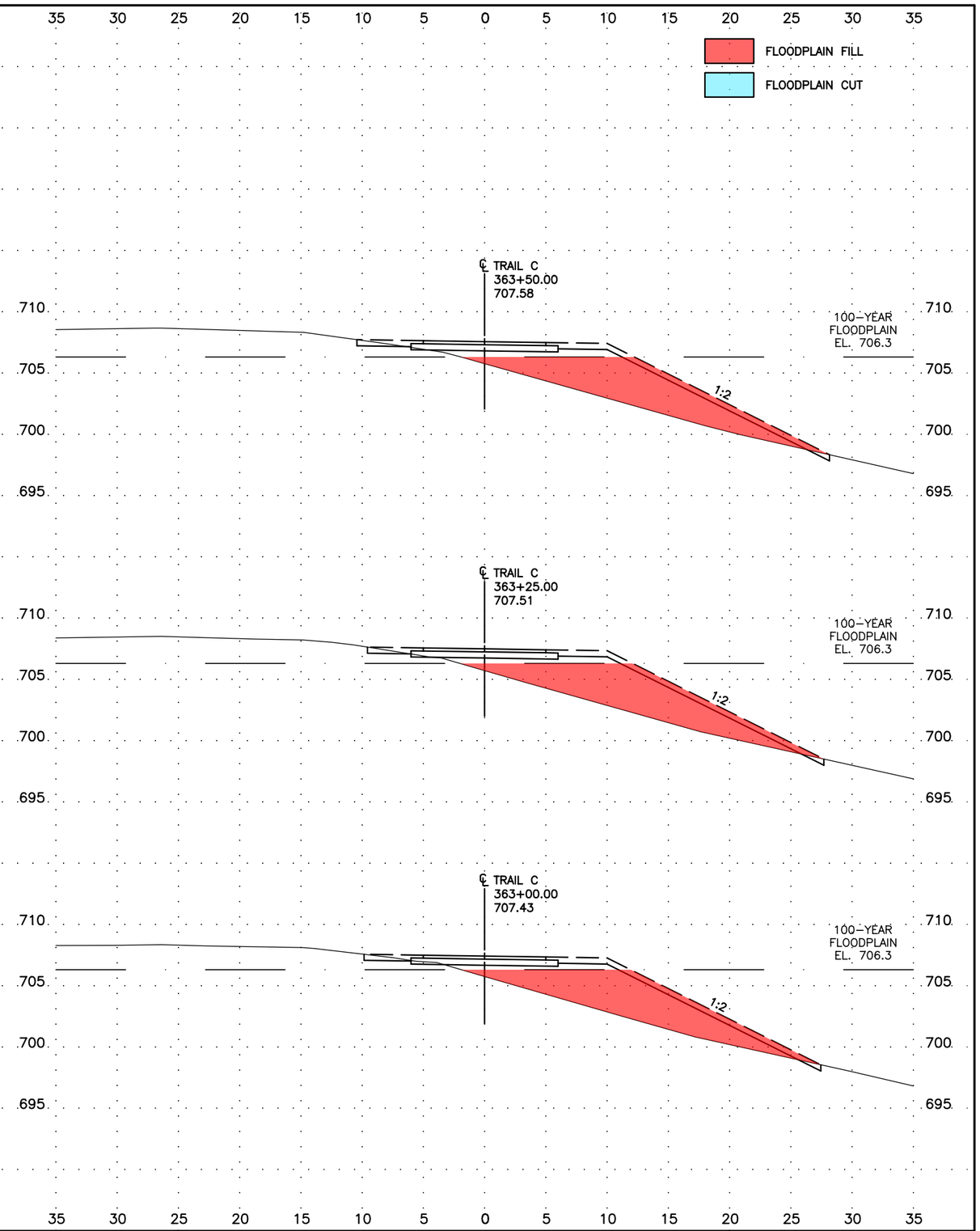
CROSS SECTIONS

TRAIL C STA. 360+75 TO STA. 362+00

S.P. 164–090–014

SHEET NO. **FP23** OF **FP47**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

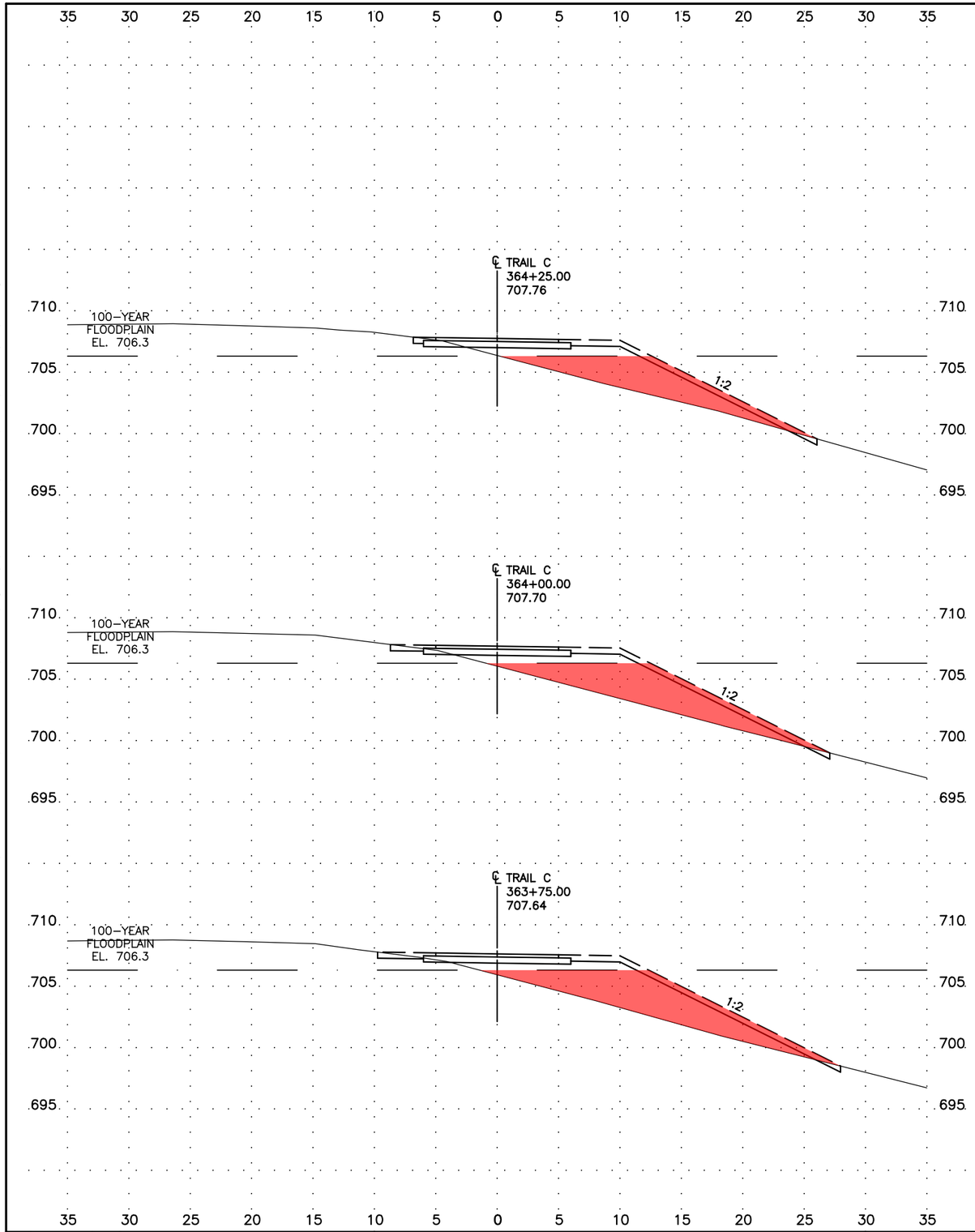
ROBERT PIRAM
REGIONAL TRAIL

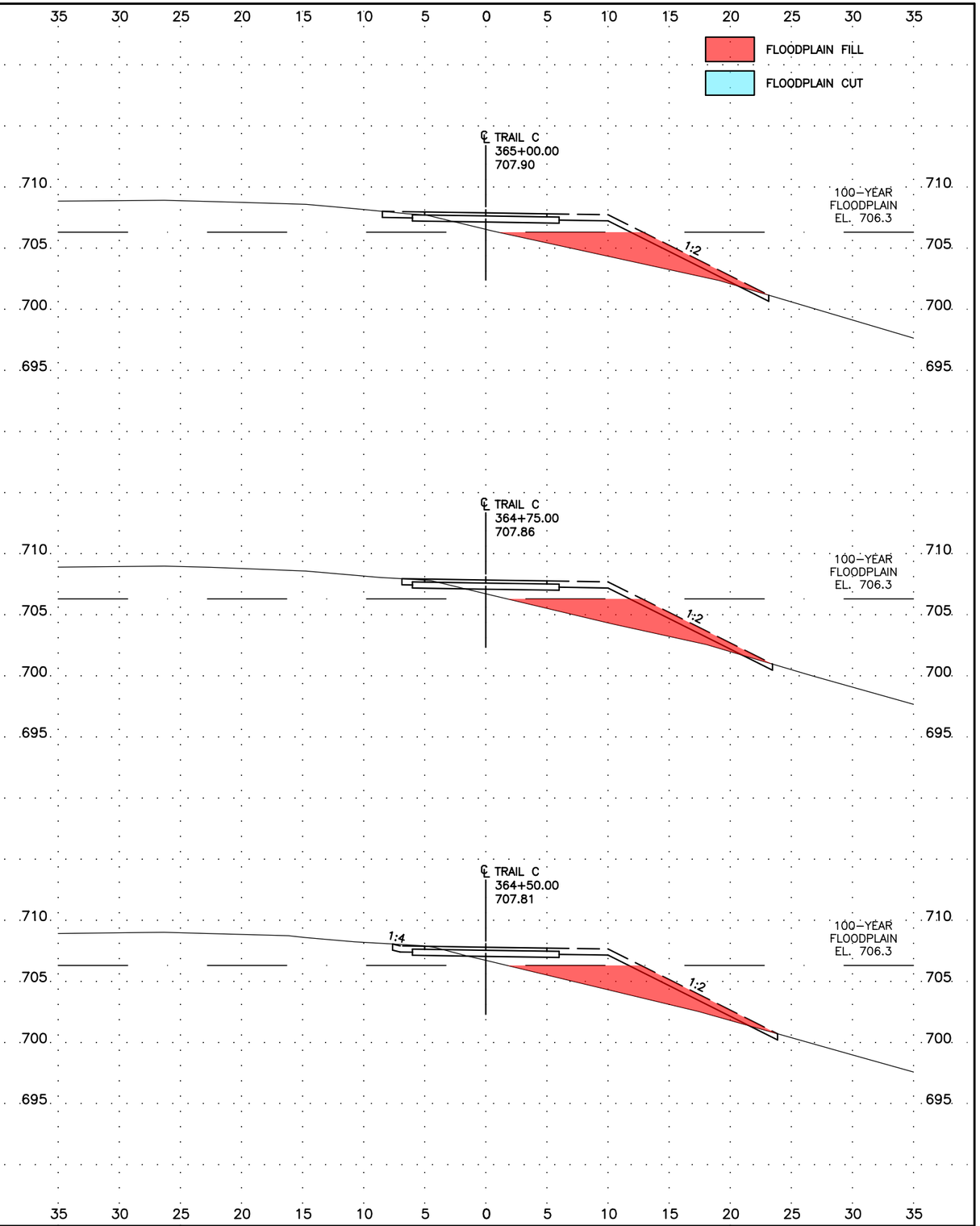
CROSS SECTIONS

TRAIL C STA. 362+25 TO STA. 363+50

S.P. 164–090–014

SHEET NO. **FP24** OF **FP47**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

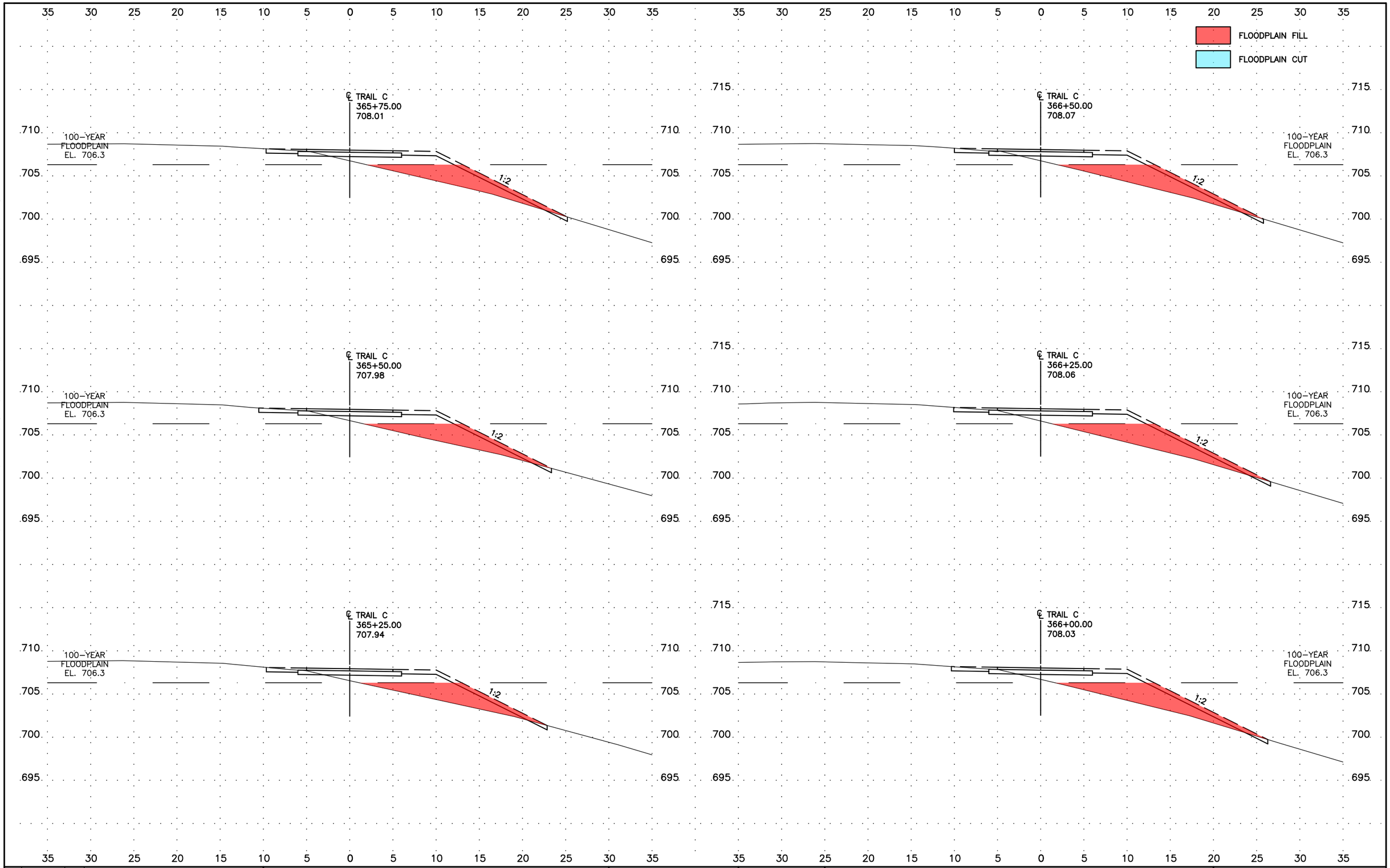
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 363+75 TO STA. 365+00

S.P. 164–090–014

SHEET NO. **FP25** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

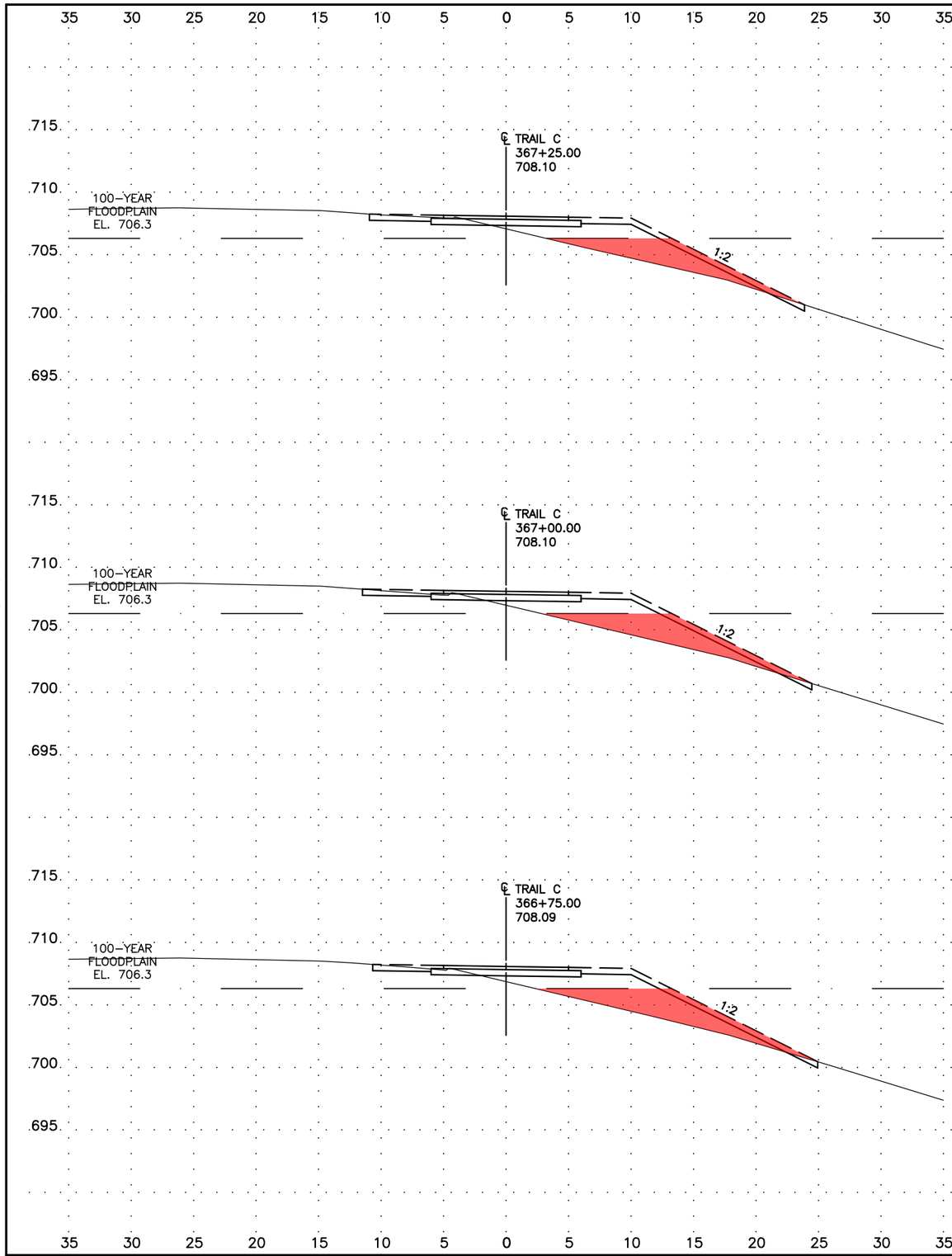
ROBERT PIRAM REGIONAL TRAIL

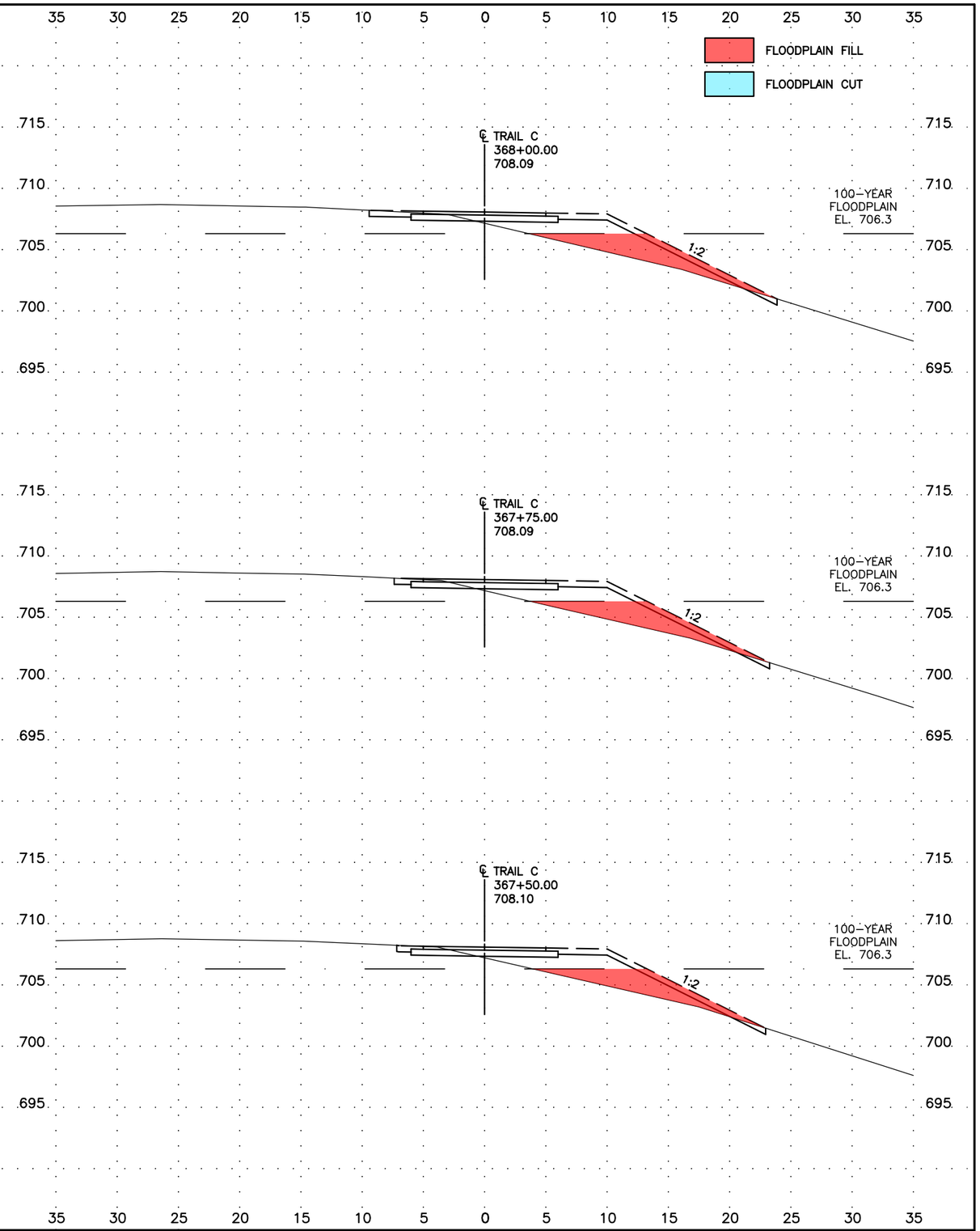
CROSS SECTIONS

TRAIL C STA. 365+25 TO STA. 366+50

S.P. 164-090-014

SHEET NO. **FP26** OF **FP47**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

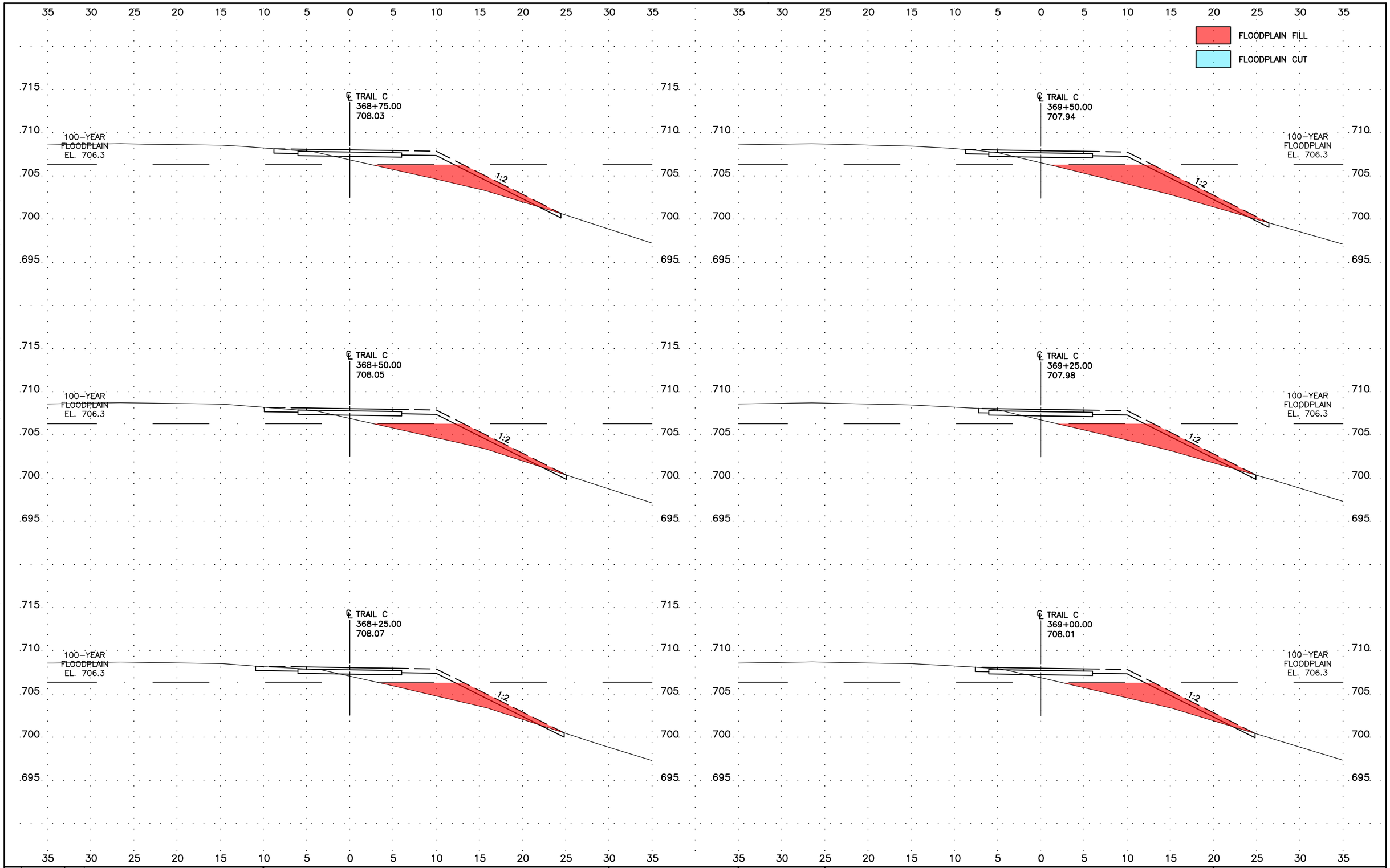
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 366+75 TO STA. 368+00

S.P. 164-090-014

SHEET NO. **FP27** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

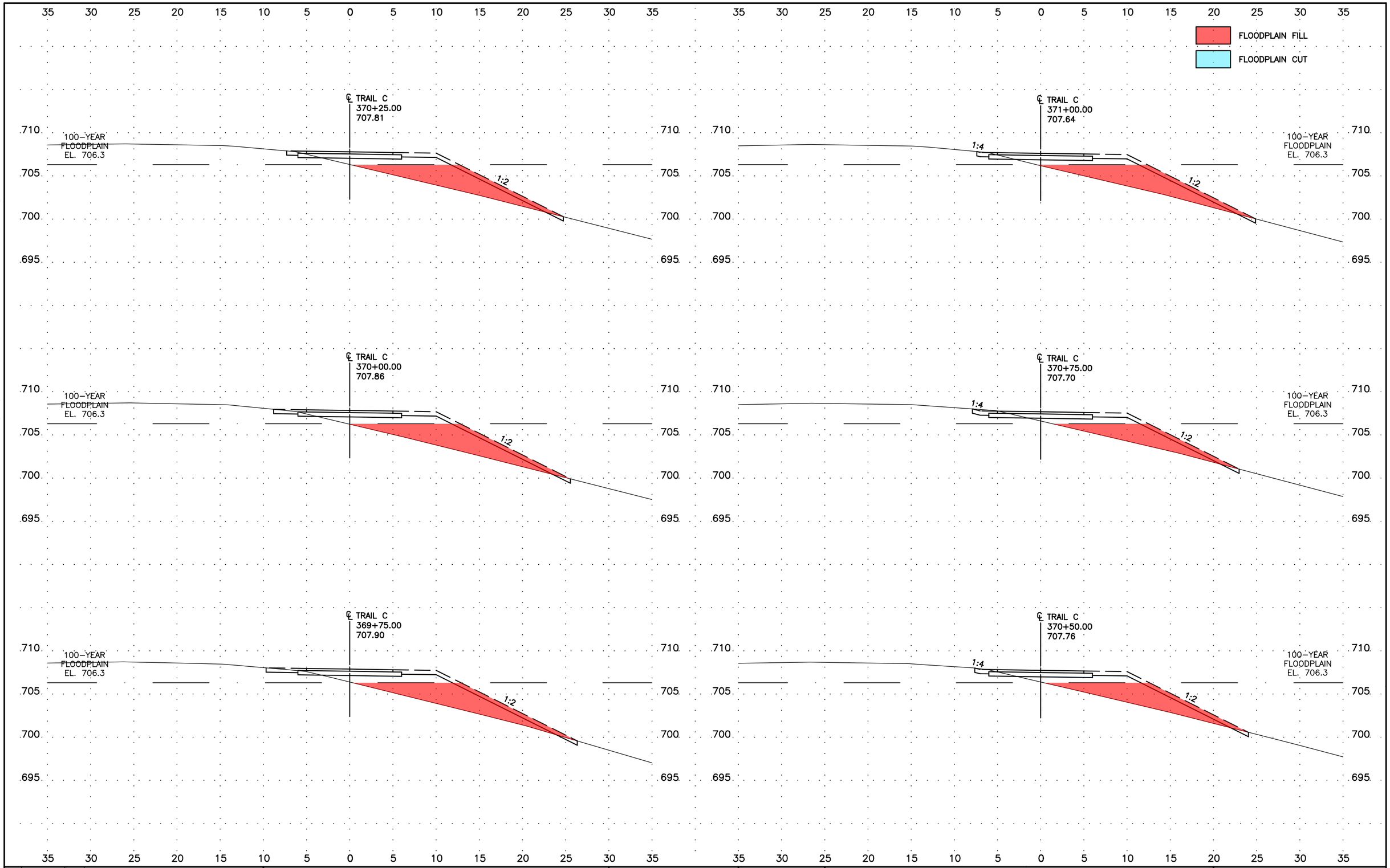
ROBERT PIRAM REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 368+25 TO STA. 369+50

S.P. 164-090-014

SHEET NO. **FP28** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

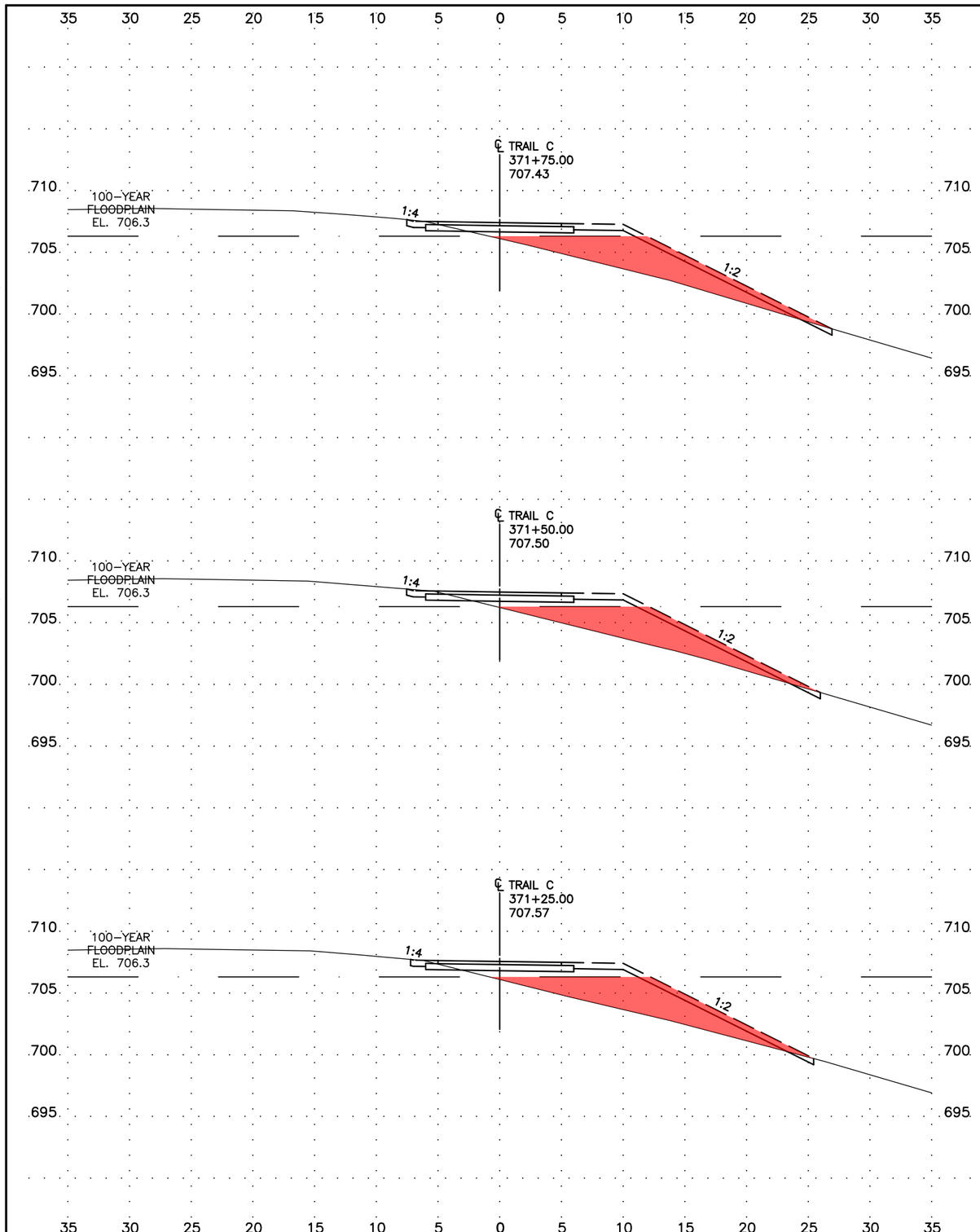
ROBERT PIRAM REGIONAL TRAIL

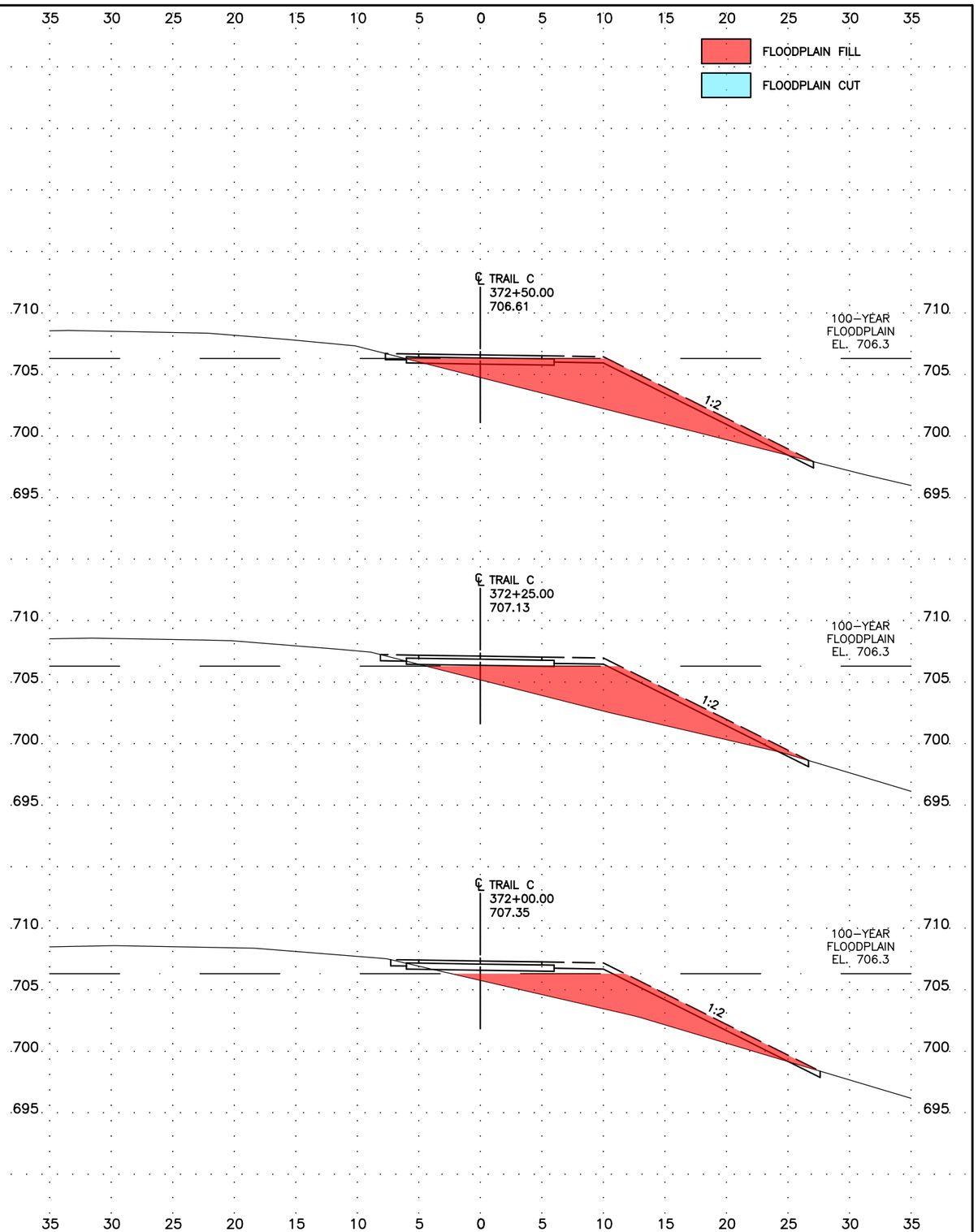
CROSS SECTIONS

TRAIL C STA. 369+75 TO STA. 371+00

S.P. 164-090-014

SHEET NO. **FP29** OF **FP47**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

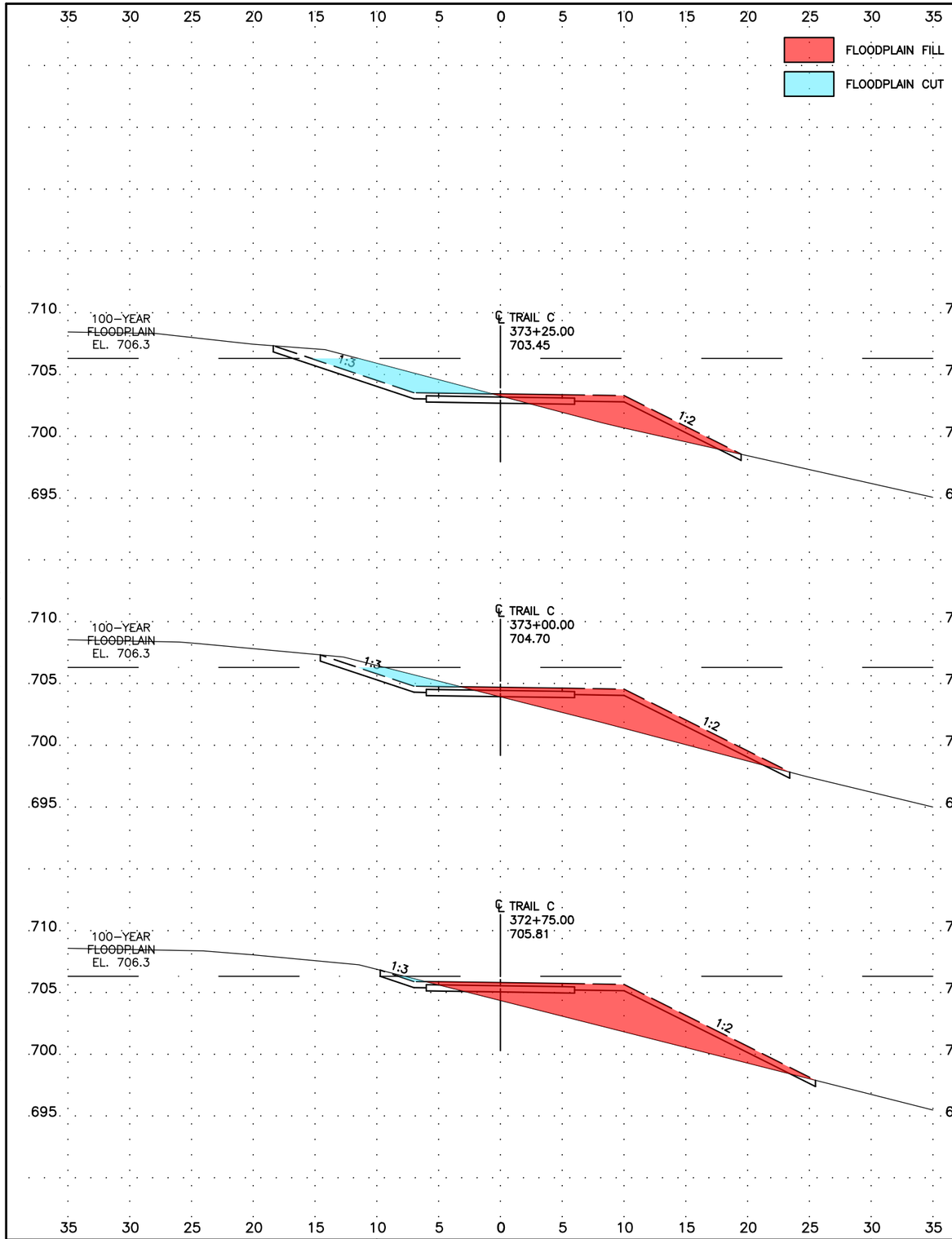
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 371+25 TO STA. 372+50

S.P. 164–090–014

SHEET NO. **FP30** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

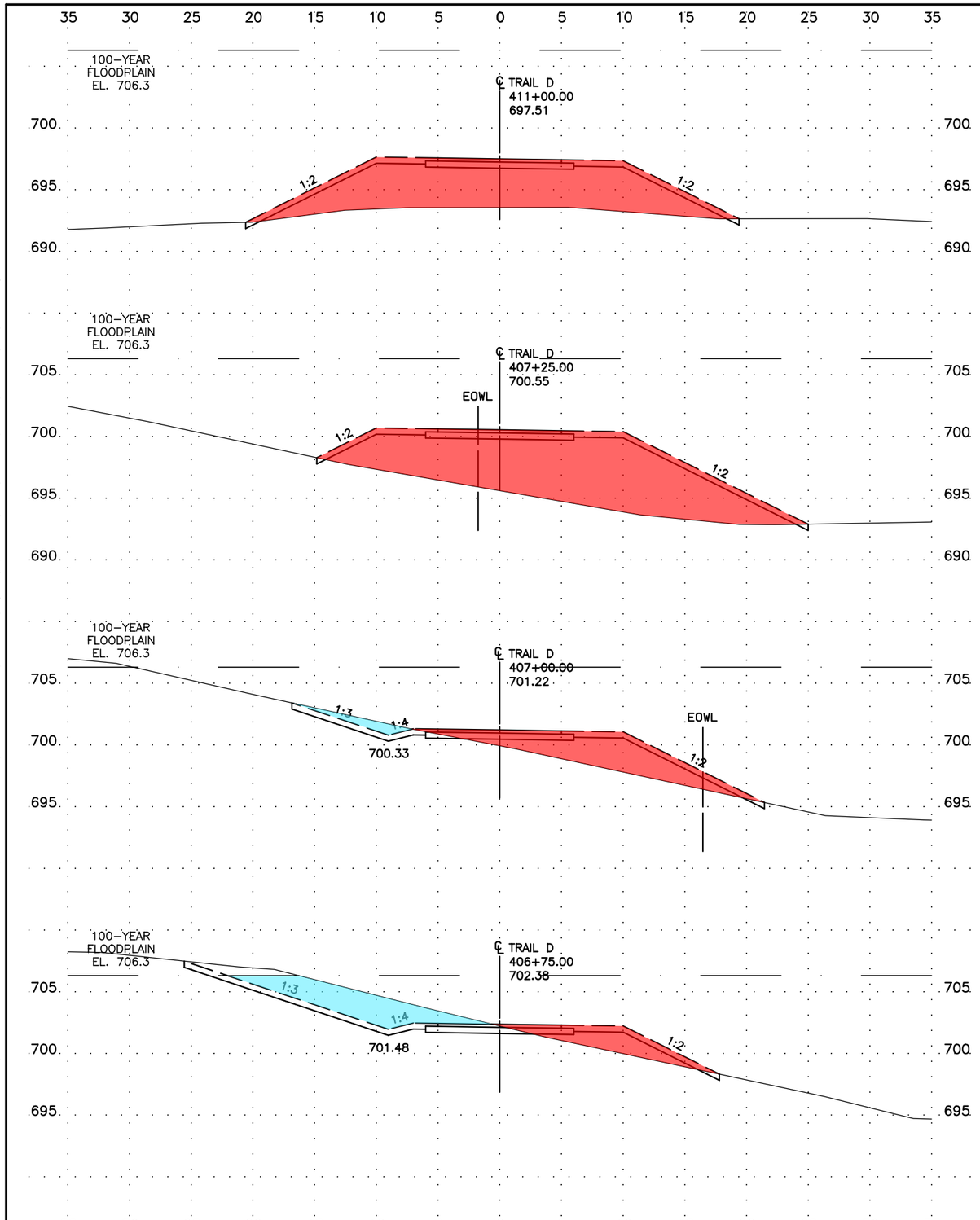
ROBERT PIRAM REGIONAL TRAIL

CROSS SECTIONS

TRAIL C STA. 372+75 TO STA. 373+25

S.P. 164-090-014

SHEET NO. **FP31** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

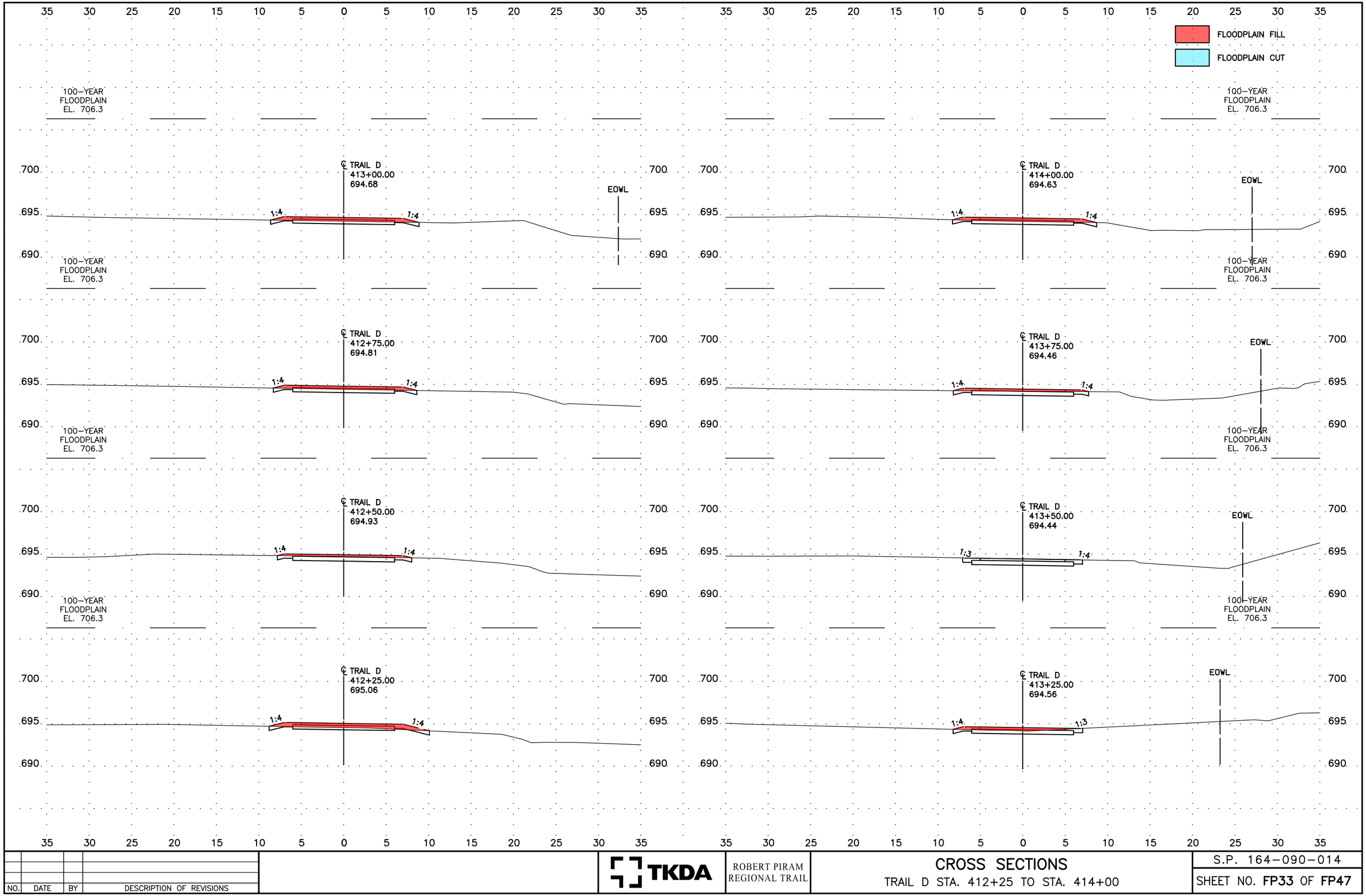
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 406+75 TO STA. 412+00

S.P. 164–090–014

SHEET NO. **FP32** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

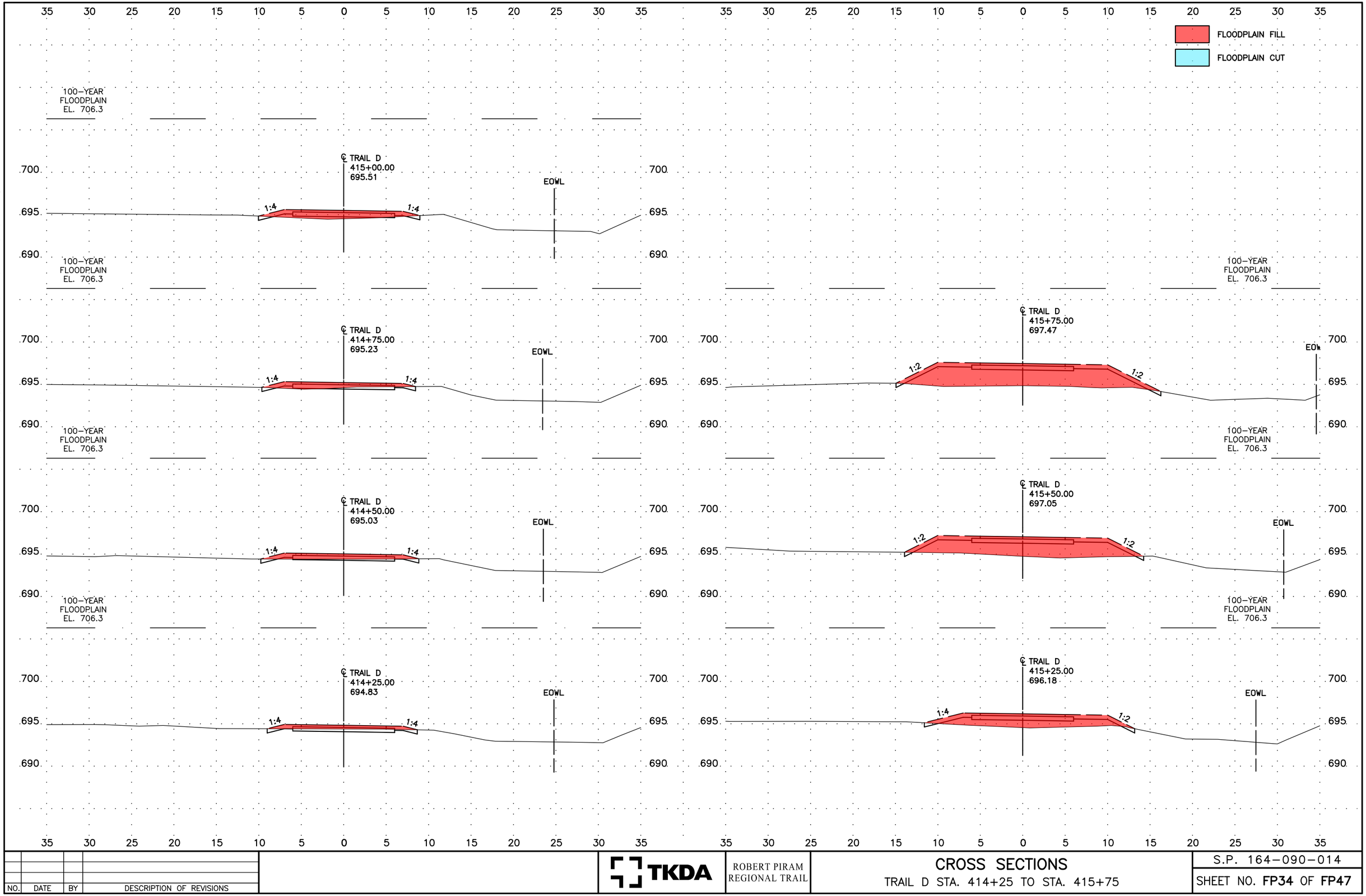
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 412+25 TO STA. 414+00

S.P. 164-090-014

SHEET NO. **FP33** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

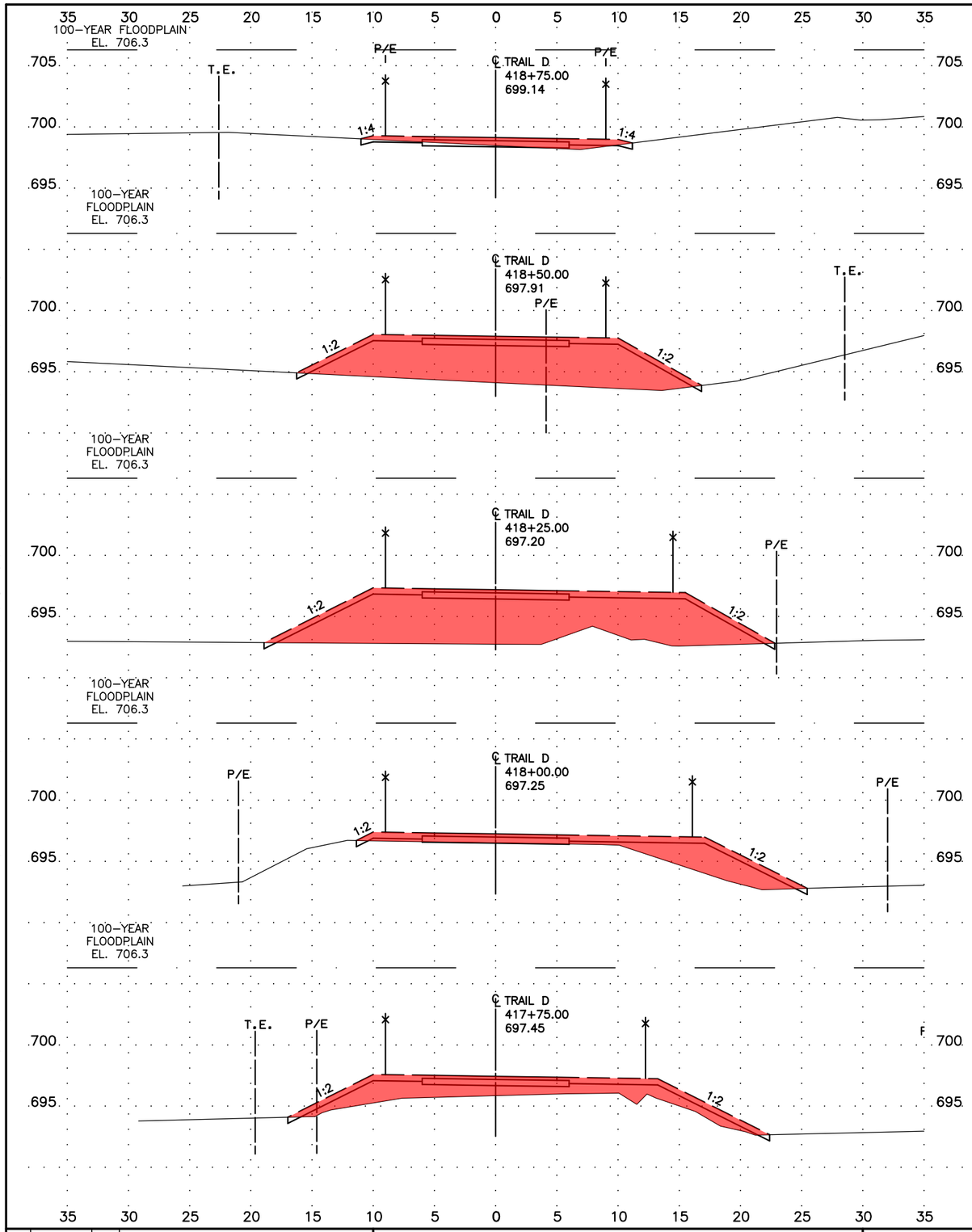
ROBERT PIRAM
REGIONAL TRAIL

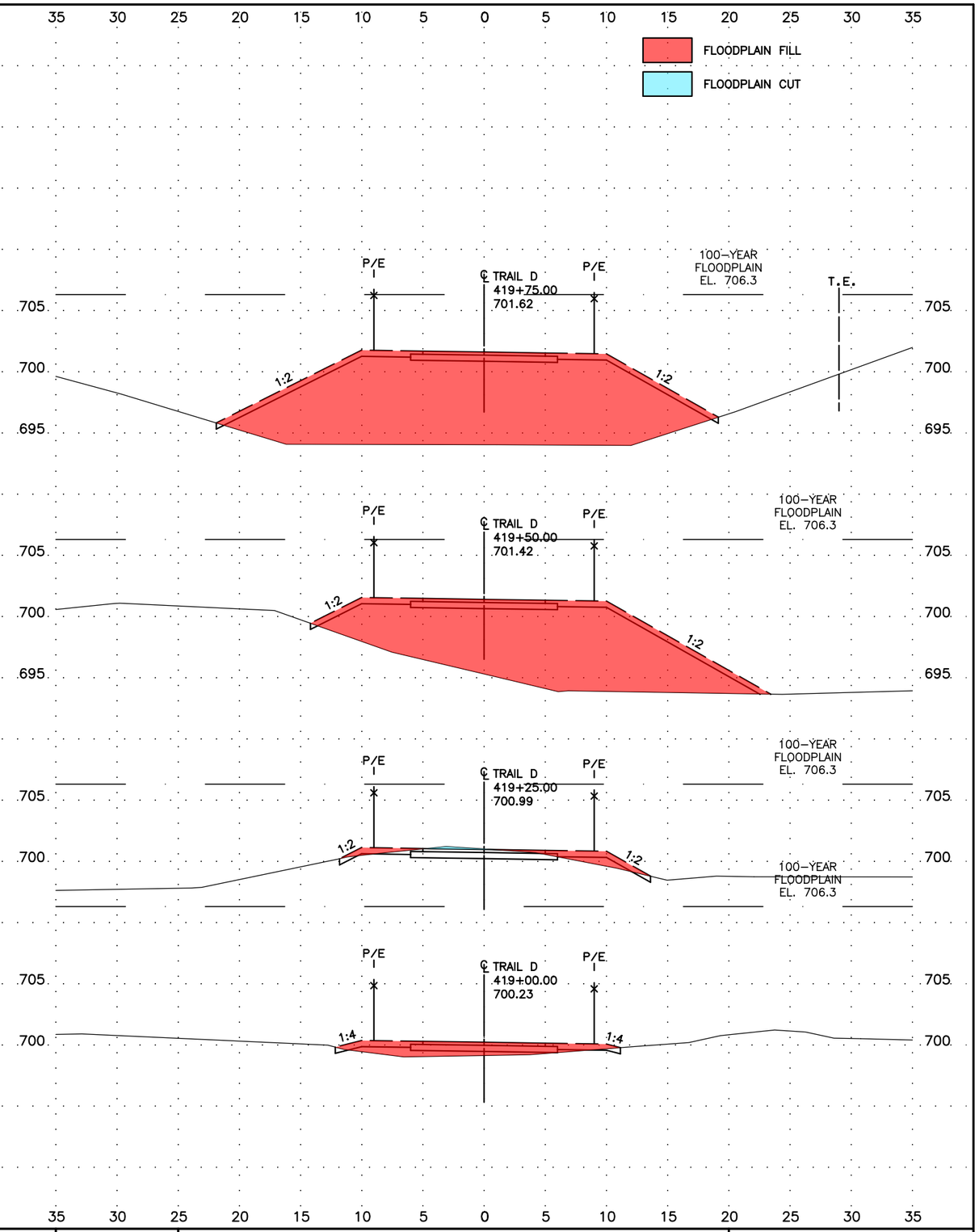
CROSS SECTIONS

TRAIL D STA. 414+25 TO STA. 415+75

S.P. 164–090–014

SHEET NO. **FP34** OF **FP47**





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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

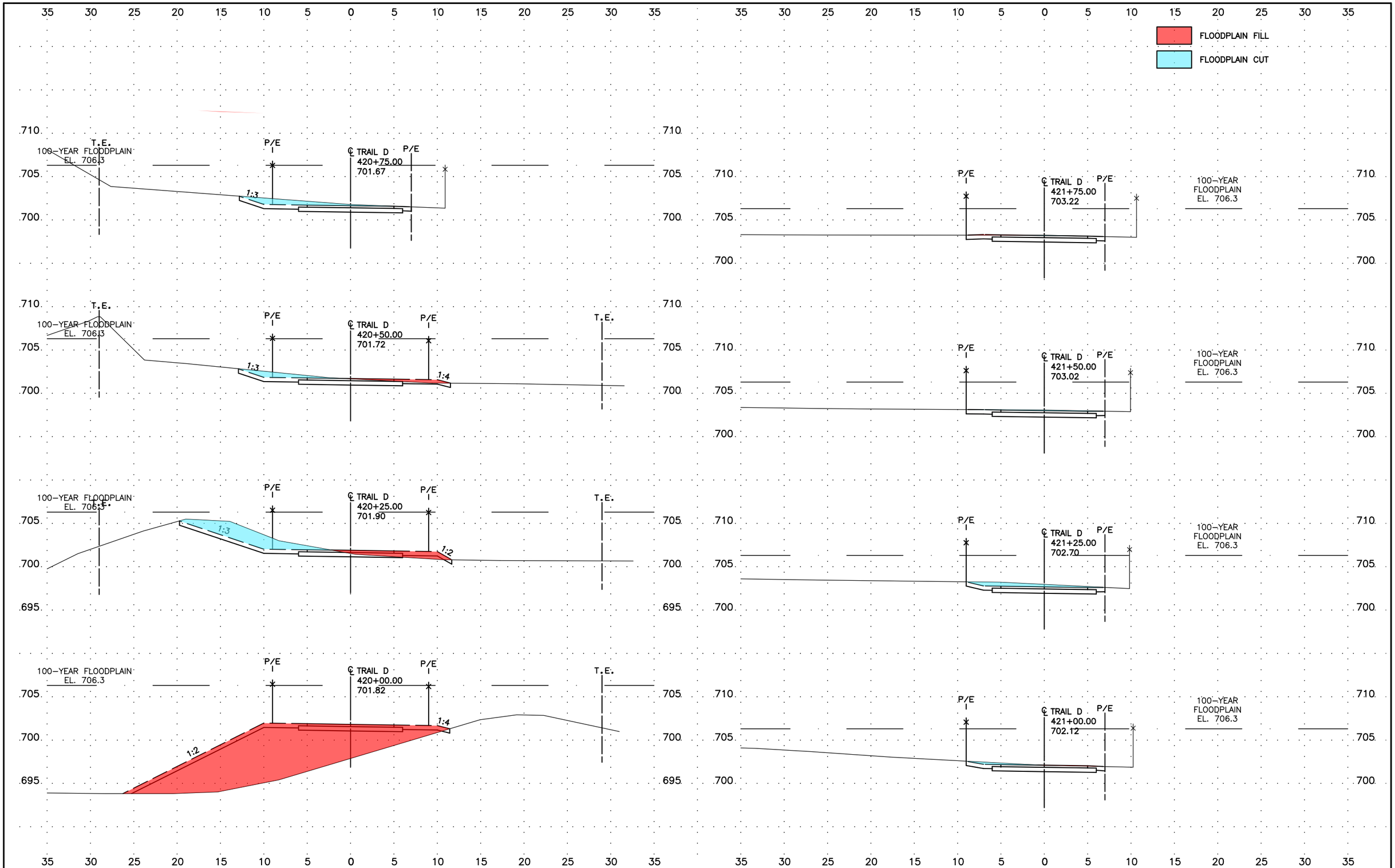
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 417+75 TO STA. 419+75

S.P. 164–090–014

SHEET NO. **FP35** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

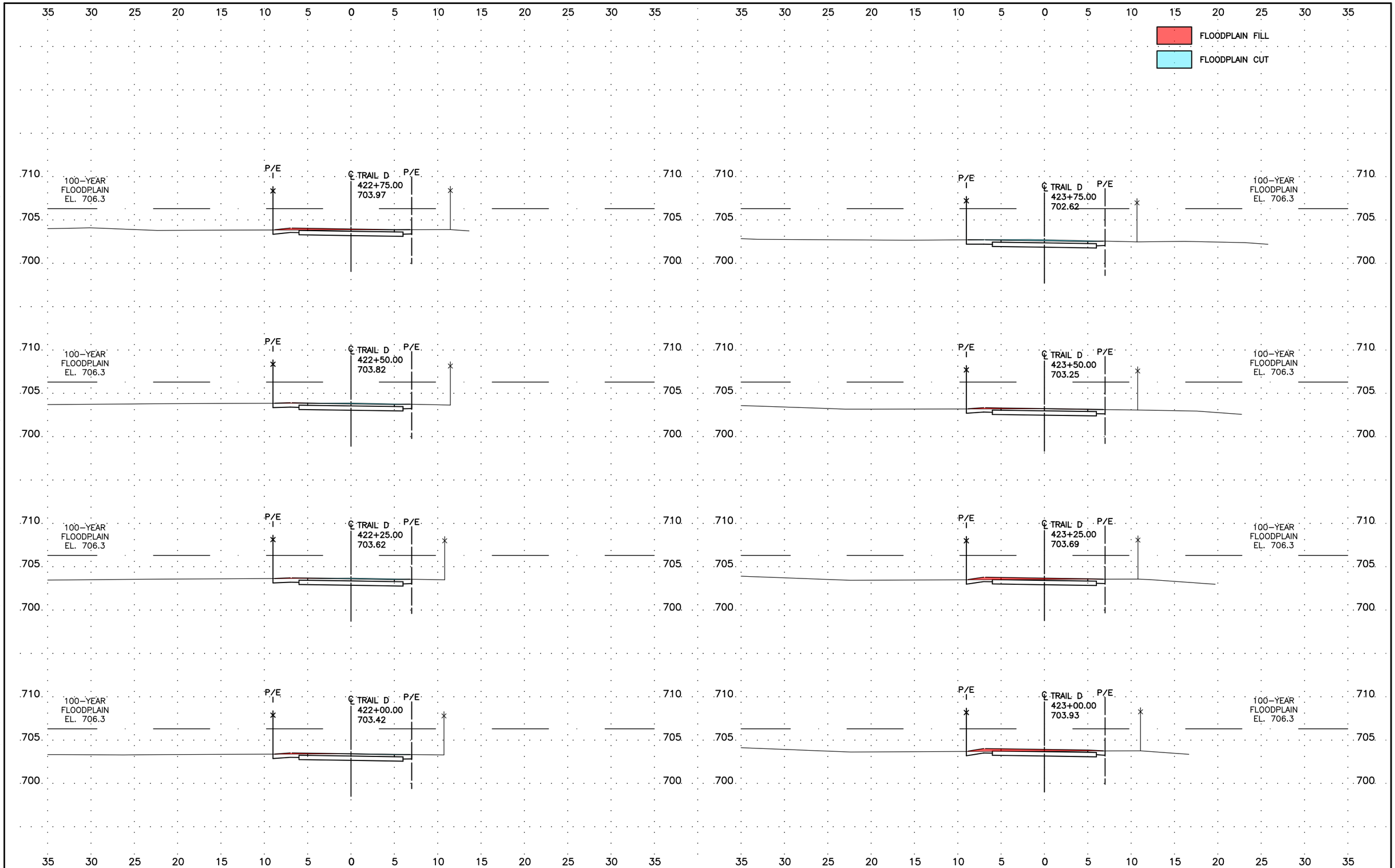
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 420+00 TO STA. 421+75

S.P. 164-090-014

SHEET NO. **FP36** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

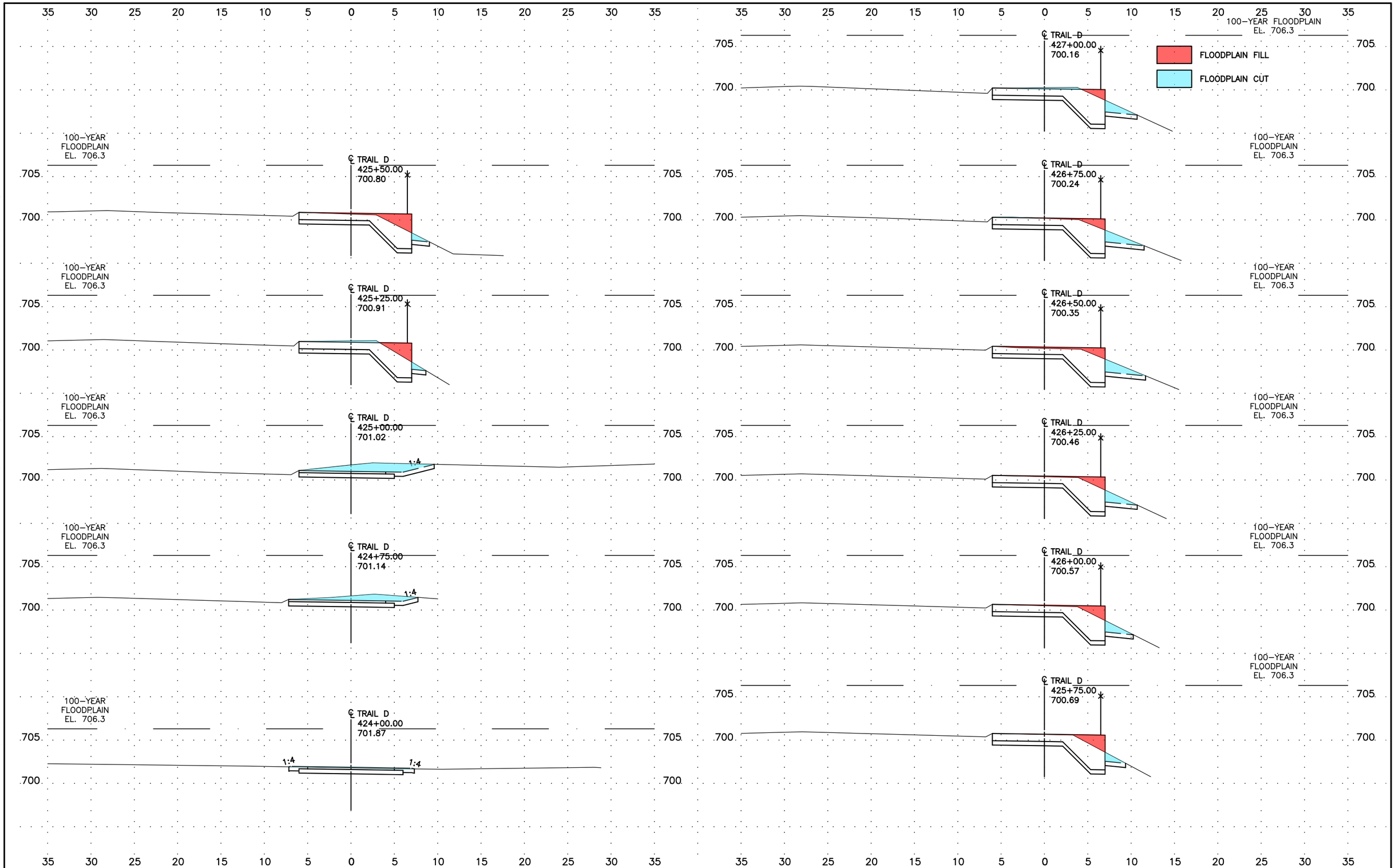
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 422+00 TO STA. 423+75

S.P. 164-090-014

SHEET NO. **FP37** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

ROBERT PIRAM REGIONAL TRAIL

CROSS SECTIONS

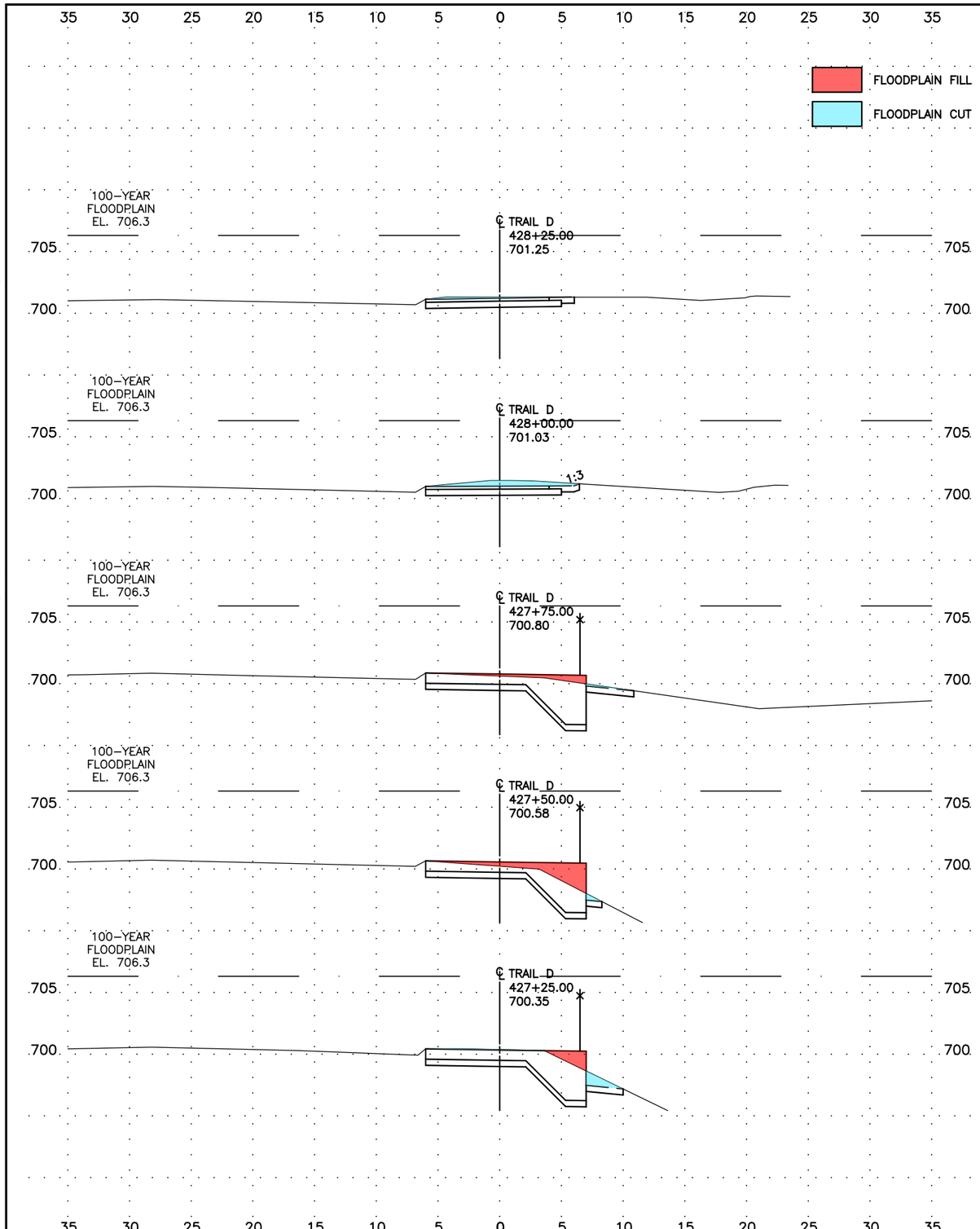
TRAIL D STA. 424+00 TO STA. 427+00

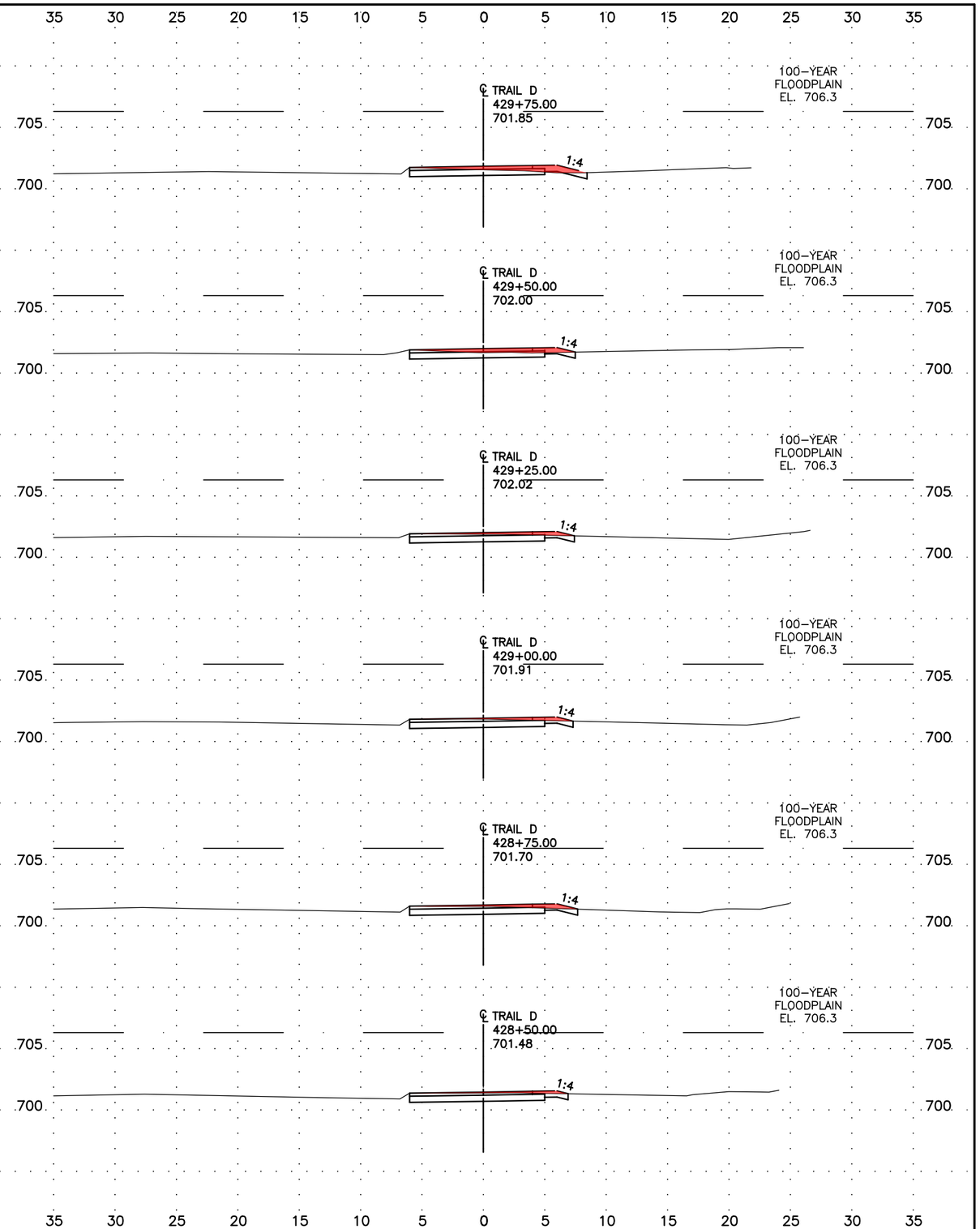
S.P. 164-090-014

SHEET NO. **FP38** OF **FP47**

FLOODPLAIN FILL

FLOODPLAIN CUT





NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

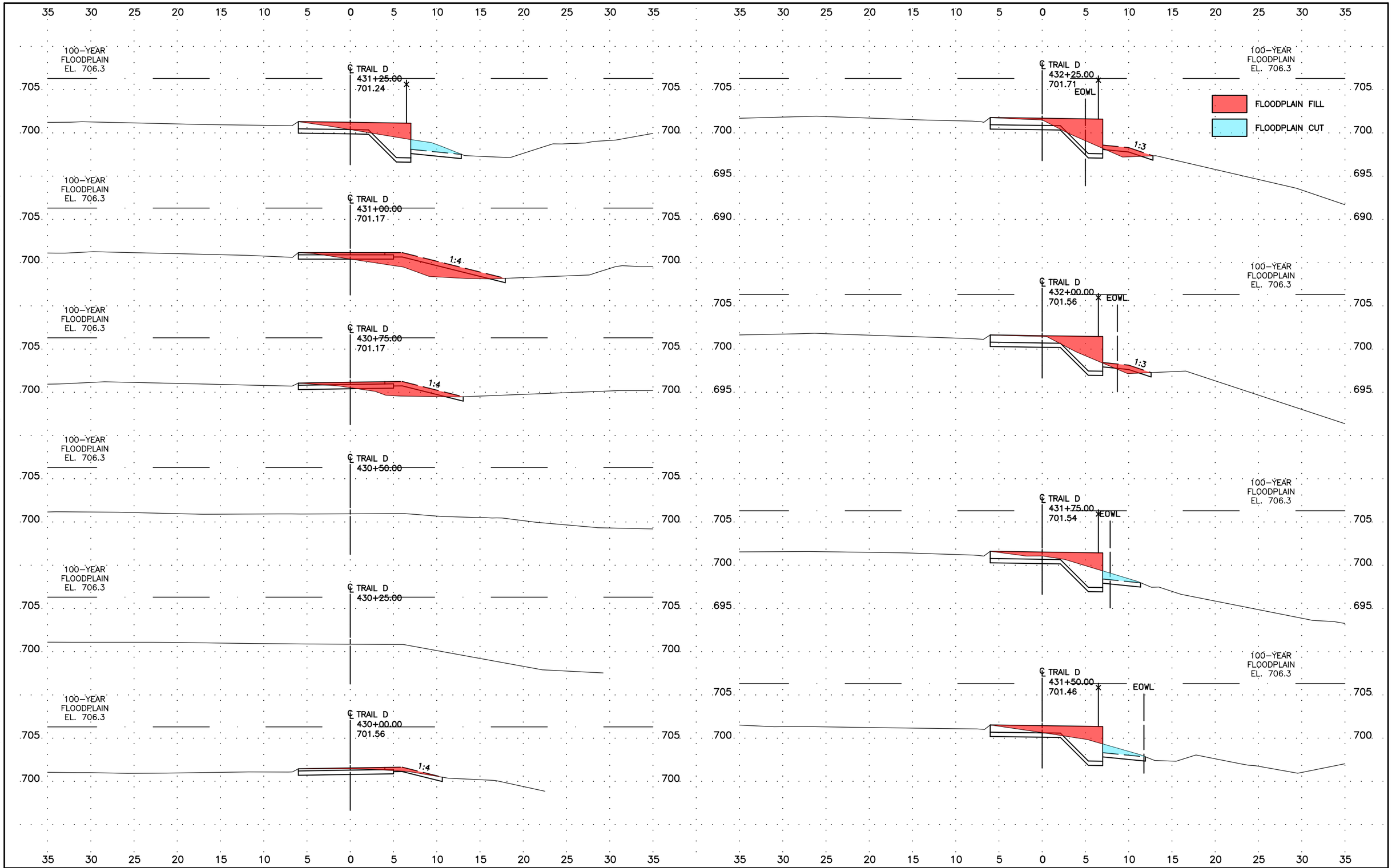
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 427+25 TO STA. 429+75

S.P. 164–090–014

SHEET NO. **FP39** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

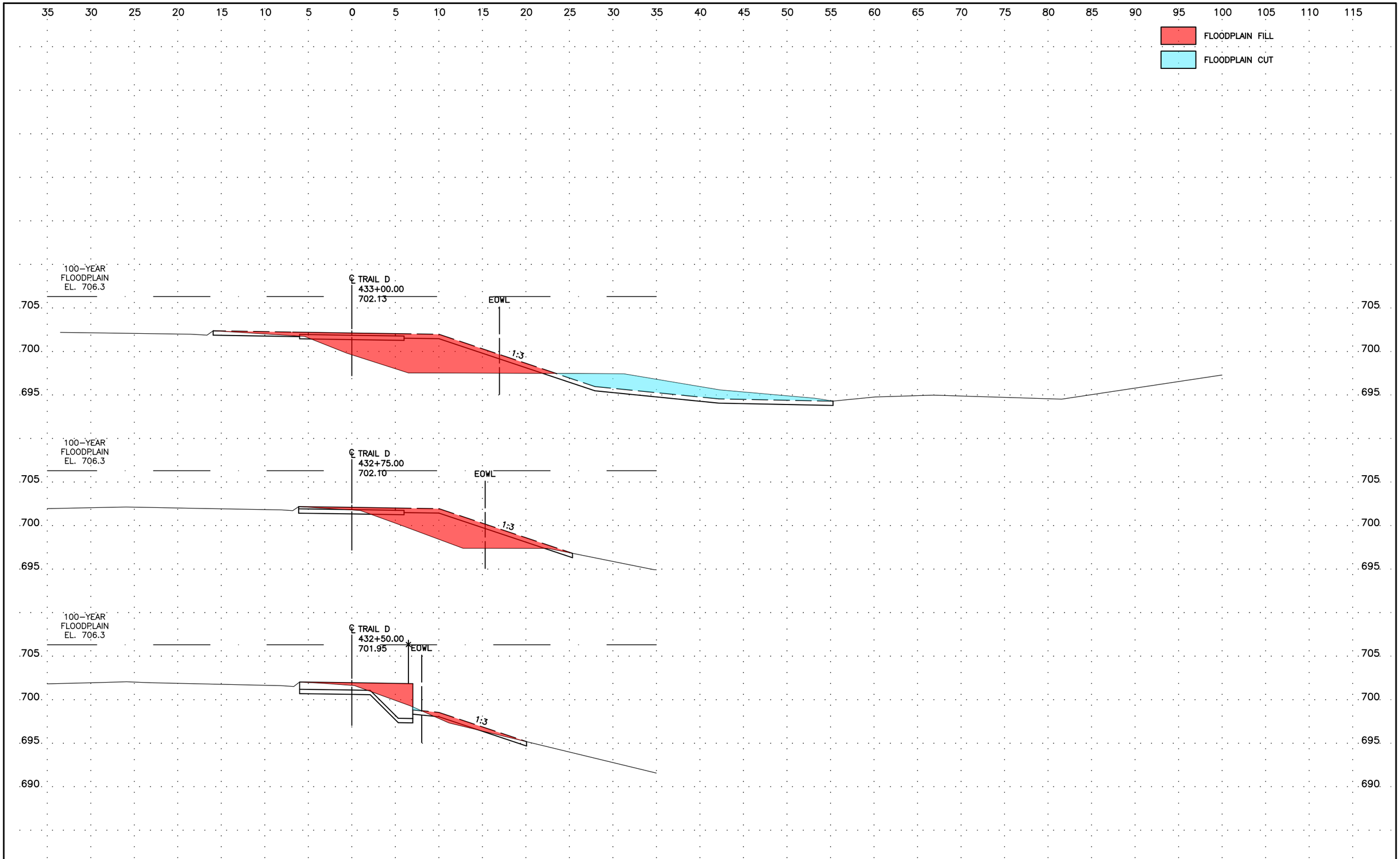
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 430+00 TO STA. 432+25

S.P. 164–090–014

SHEET NO. **FP40** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

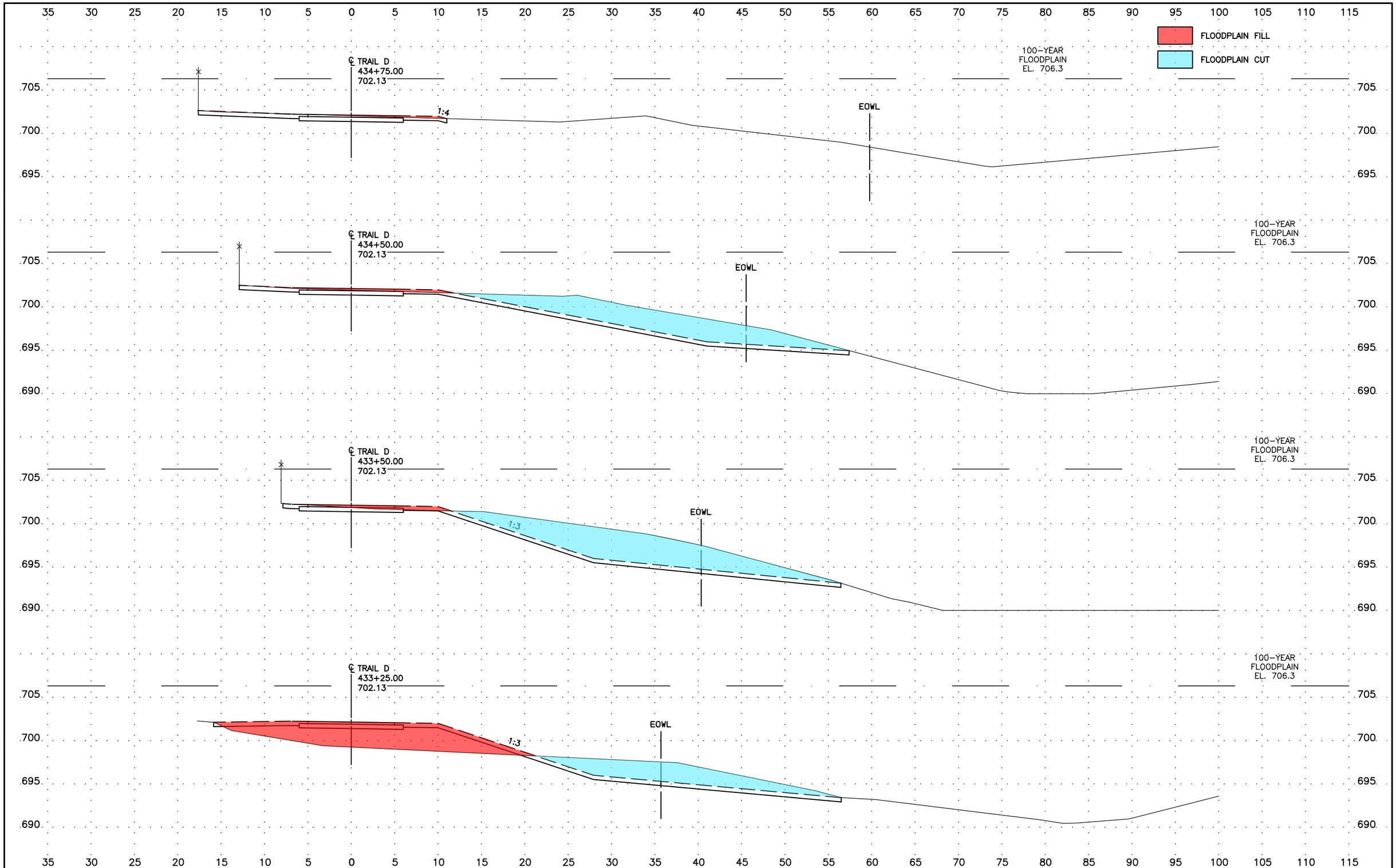
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 432+50 TO STA. 433+00

S.P. 164-090-014

SHEET NO. **FP41** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

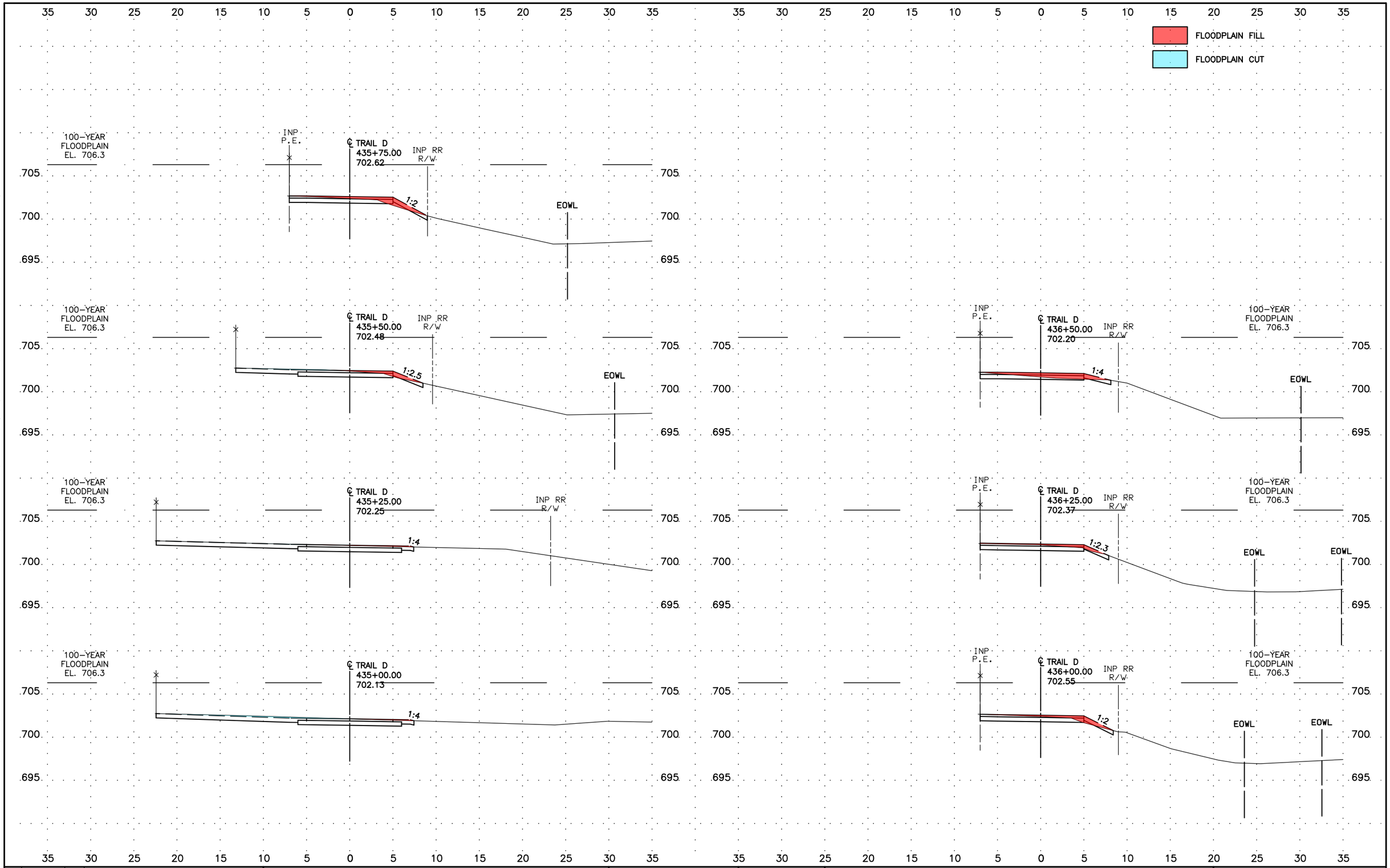
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 433+25 TO STA. 434+75

S.P. 164–090–014

SHEET NO. **FP42** OF **FP47**



NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

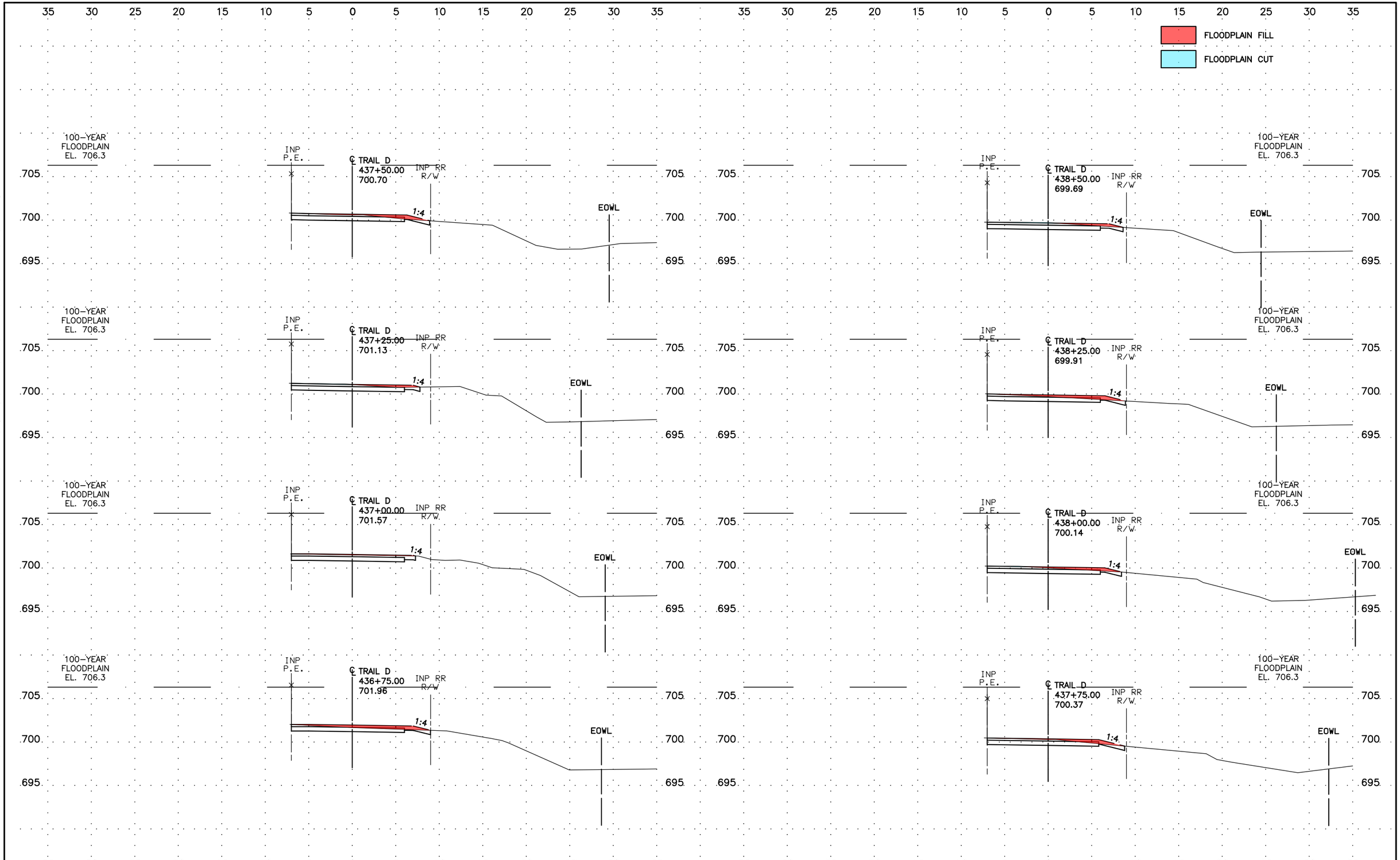
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 435+00 TO STA. 436+50

S.P. 164-090-014

SHEET NO. **FP43** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

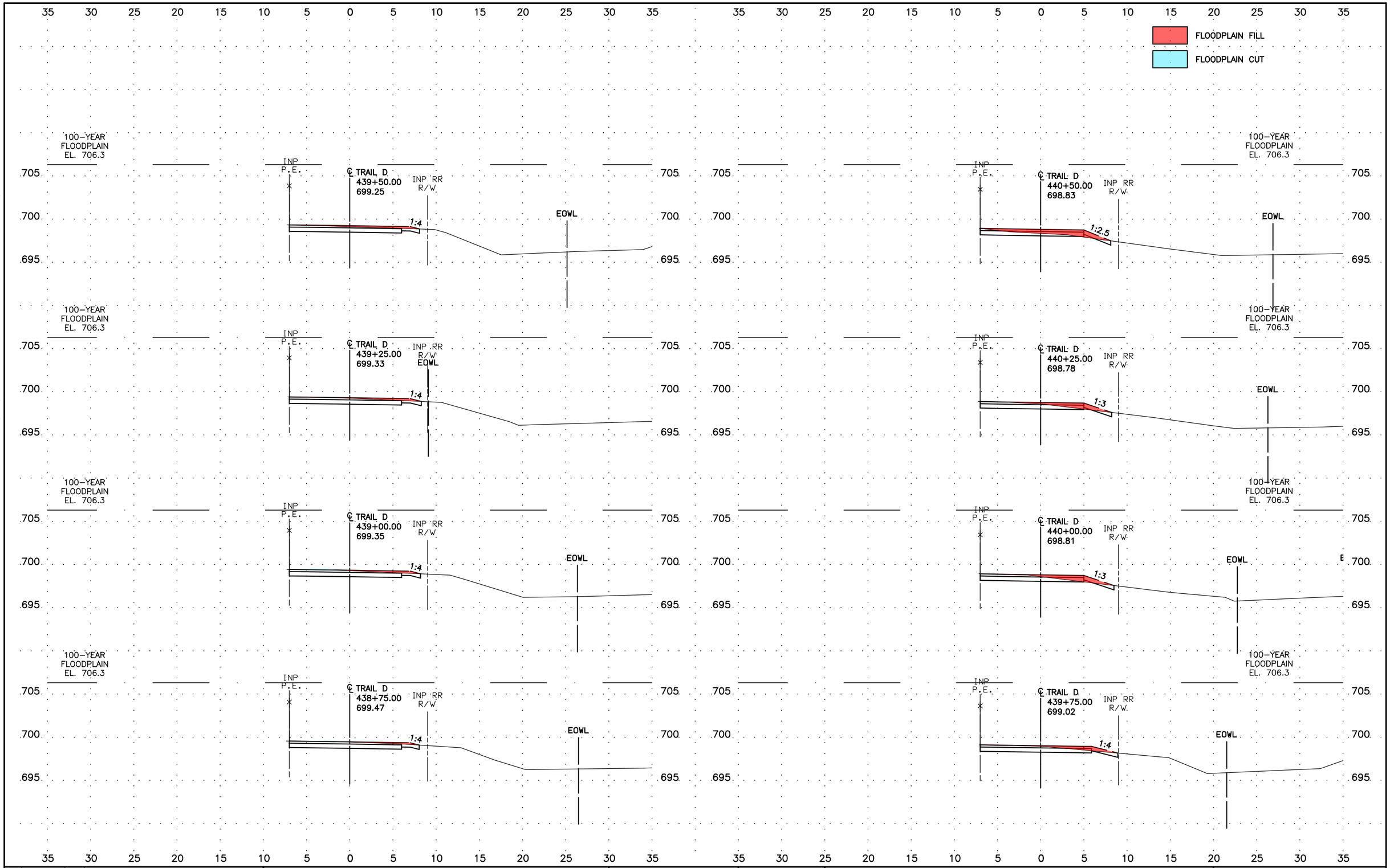
ROBERT PIRAM
REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 436+75 TO STA. 438+50

S.P. 164-090-014

SHEET NO. **FP44** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

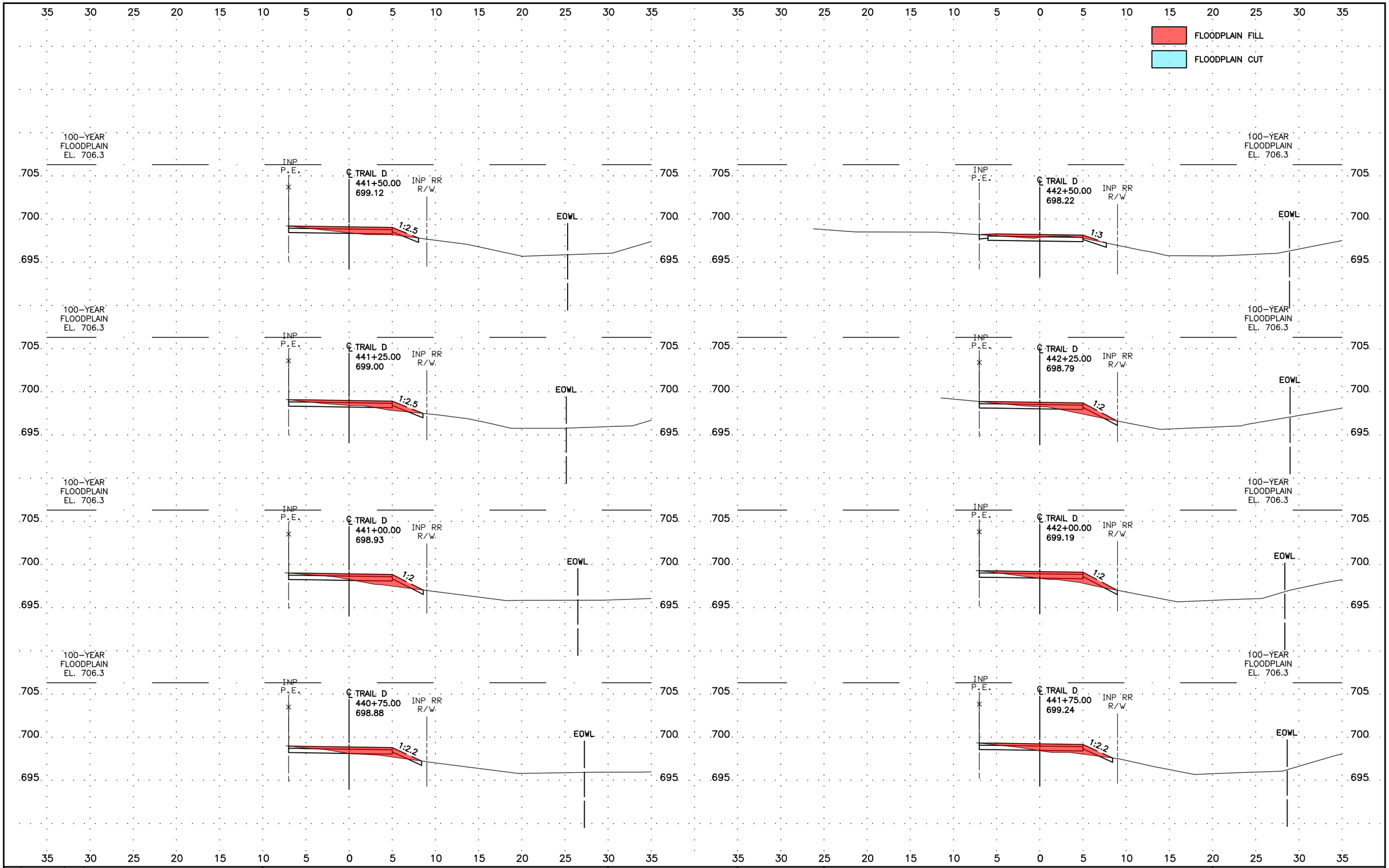
ROBERT PIRAM REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 438+75 TO STA. 440+50

S.P. 164-090-014

SHEET NO. **FP45** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

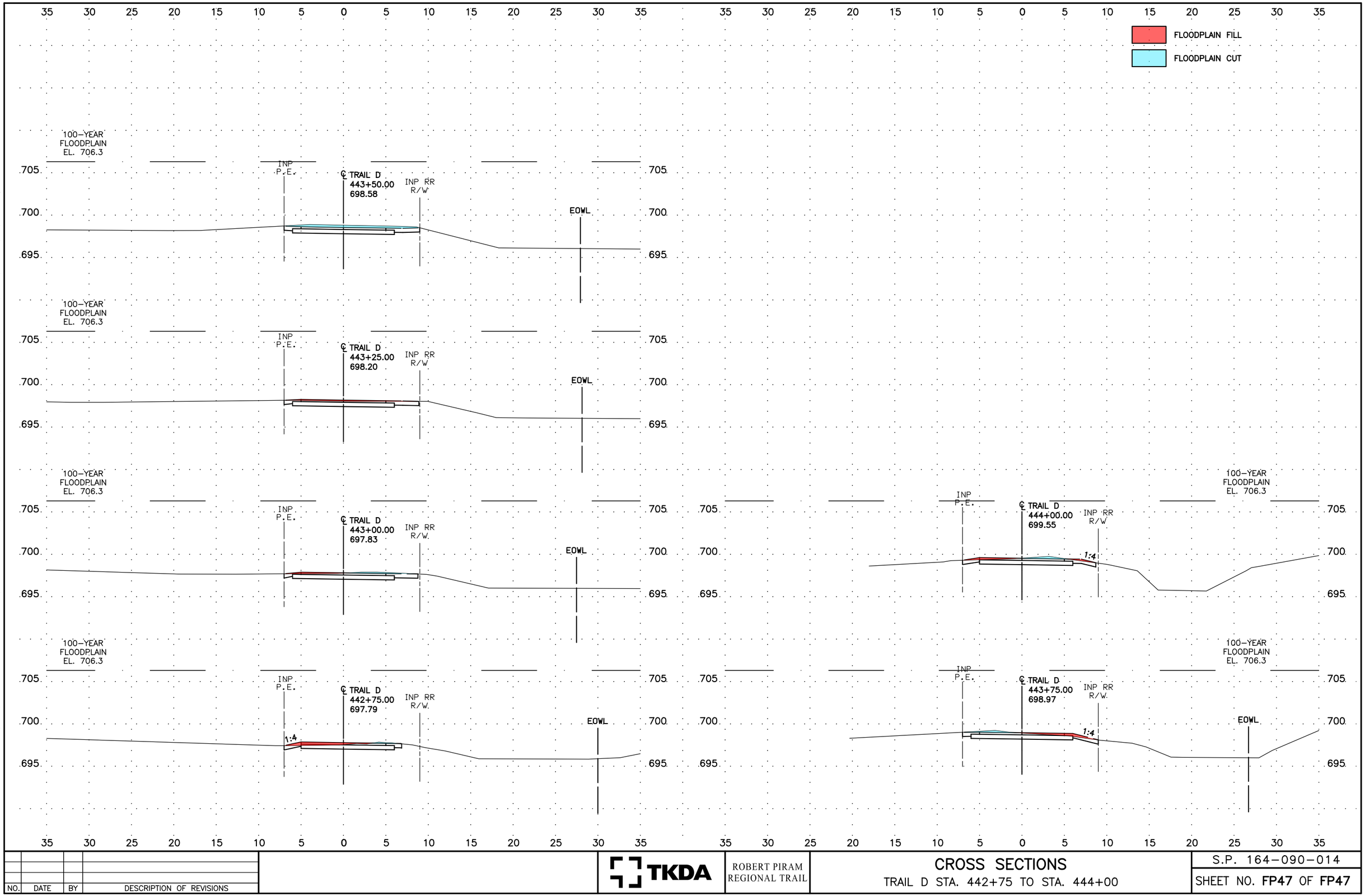
ROBERT PIRAM REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 440+75 TO STA. 442+50

S.P. 164-090-014

SHEET NO. **FP46** OF **FP47**



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NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA

ROBERT PIRAM REGIONAL TRAIL

CROSS SECTIONS

TRAIL D STA. 442+75 TO STA. 444+00

S.P. 164-090-014

SHEET NO. **FP47** OF **FP47**