ATTACHMENT G-1: JOINT PERMIT APPLICATION IMPACT PLATES

Additional Info/Revision
Received by VMRC December 26, 2019 /lra

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia Regulations Erosion and Sediment Control Regulations.

ES-2: The plan approving authority must be notified one week prior to the pre- construction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.

ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.

ES-4: A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.

ES-5: Prior to· commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the plan approving authority.

ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.

ES-7: All disturbed areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

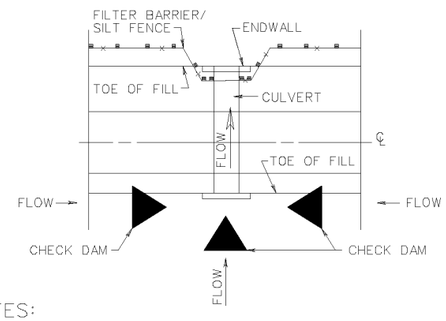
ES-8: During dewatering operations, water will be pumped into an approved filtering device.

ES-9: The contractor shall inspect all erosion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

Additional Info/Revision
Received by VMRC December 26, 2019 /lra

EC-5

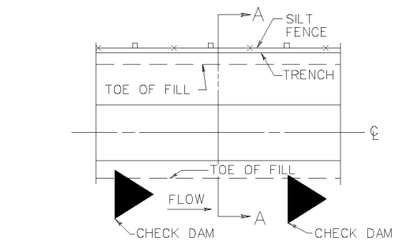
TYPICAL DETAIL FOR TEMPORARY FILTER BARRIER/SILT FENCE/CHECK DAM AT CULVERT



NOTES:

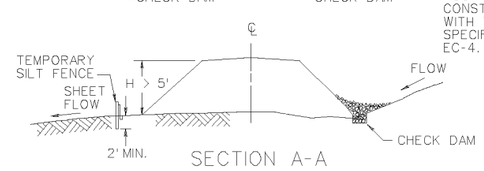
1. IF ANY PORTION OF FILL IS GREATER THAN 5', SILT FENCE IS REQUIRED. IF FILL HEIGHT IS LESS THAN 5', FILTER BARRIER IS REQUIRED.
2. ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.

TYPICAL DETAIL FOR TEMPORARY SILT FENCE/CHECK DAM AT TOE OF FILL



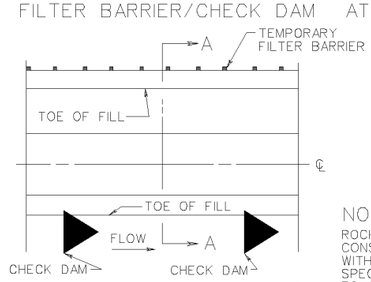
NOTE:

ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.



SECTION A-A

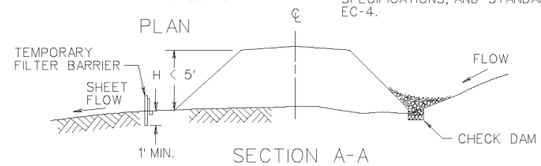
TYPICAL DETAIL FOR TEMPORARY FILTER BARRIER/CHECK DAM AT TOE OF FILL



NOTE:

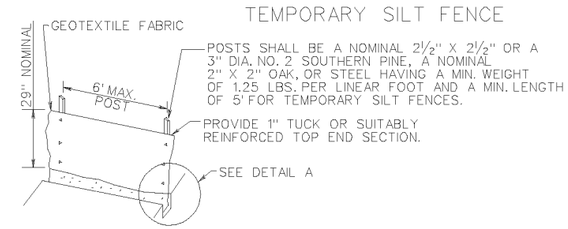
ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.

PLAN

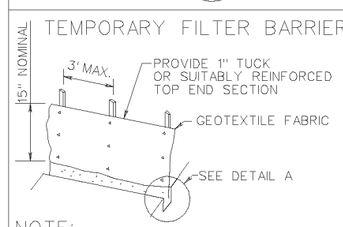


SECTION A-A

TEMPORARY SILT FENCE

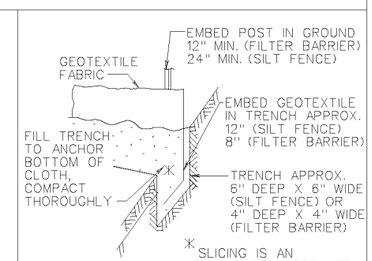


TEMPORARY FILTER BARRIER



NOTE:

SUPPORTS FOR TEMPORARY FILTER BARRIERS SHALL BE A NOMINAL 1" X 2" OR A 1½" DIA. NO. 2 SOUTHERN PINE OR OAK, OR STEEL HAVING A MIN. WEIGHT OF 1.00 LBS. PER LINEAR FOOT.



DETAIL A

TEMPORARY SILT FENCE AND FILTER BARRIER

VIRGINIA DEPARTMENT OF TRANSPORTATION

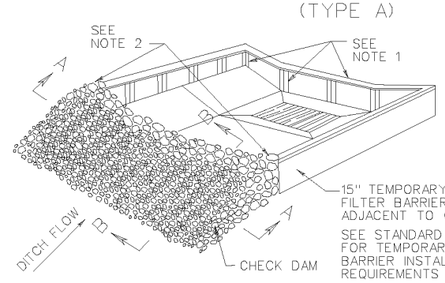
REV. 9/06
114.06

SPECIFICATION REFERENCE
107 242 303

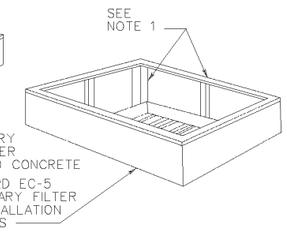
Additional Info/Revision
Received by VMRC December 26, 2019 /lra

EC-6

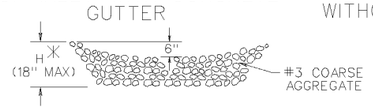
DROP INLET SILT TRAP (TYPE A)



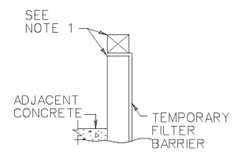
TYPICAL TREATMENT FOR DROP INLET WITH CONCRETE GUTTER



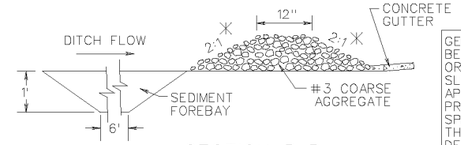
TYPICAL TREATMENT FOR DROP INLET WITHOUT CONCRETE GUTTER



SECTION A-A



✳ IF CHECK DAM IS LOCATED INSIDE CLEAR ZONE AND ADJACENT TO A TRAVELWAY, SLOPE FACING ON COMING TRAFFIC IS TO BE 6:1 AND MAXIMUM H IS TO BE 12".



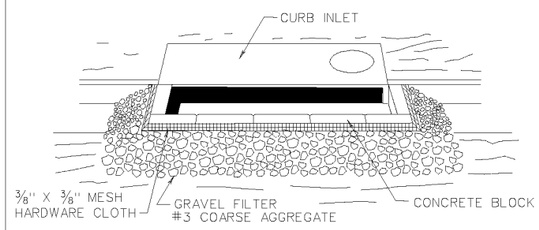
SECTION B-B

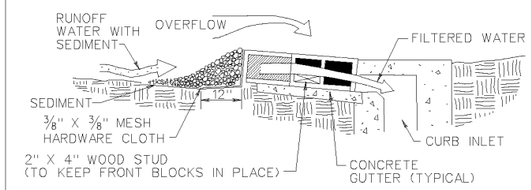
GEOTEXTILE PRODUCTS DESIGNED TO BE INSERTED INTO GRATED DROP INLETS OR DESIGNED TO COVER THE SLOTS OF SLOT DROP INLETS, THAT HAVE BEEN APPROVED FOR USE ON VDOT PROJECTS AND ARE FOUND ON VDOT'S SPEL LIST, MAY BE SUBSTITUTED FOR THE DROP INLET PROTECTION DEVICES DETAILED HEREON.

NOTES

1. POSTS AND TOP RAIL SHALL BE A NOMINAL 2½" X 2½" OR A 3" DIA. NO. 2 SOUTHERN PINE, A NOMINAL 2" X 2" OAK, OR STEEL HAVING A MIN. WEIGHT OF 1.25 LBS. PER LINEAR FOOT AND A MIN. LENGTH OF 5' FOR TEMPORARY SILT FENCES.
2. END OF FILTER BARRIER TO BE EMBEDDED INTO AGGREGATE.
3. IF A DROP INLET IS LOCATED IN A SAG IN THE DITCH GRADE, A CHECK DAM IS REQUIRED FOR EACH SIDE OF THE INLET THAT RECEIVES DITCH FLOW.
4. WHERE DRAINAGE AREAS EXCEED ONE ACRE OR DITCH GRADE EXCEEDS 3%, A TEMPORARY SEDIMENT FOREBAY SHALL BE INSTALLED WITH MINIMUM DIMENSIONS OF 12" DEPTH, 2' WIDTH AND 6' LENGTH.

DROP INLET SILT TRAP TYPE B (BLOCK AND GRAVEL)



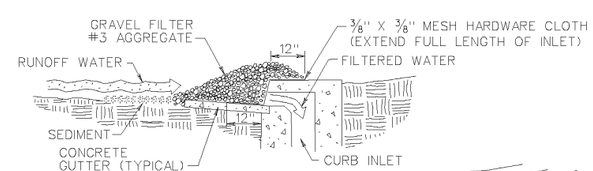


SECTION VIEW

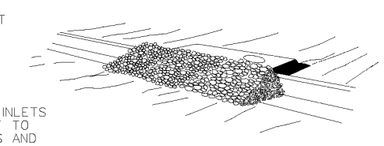
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

ALTERNATE DROP INLET SILT TRAP TYPE B (GRAVEL)



SECTION VIEW



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

SPECIFICATION REFERENCE
107 242 303

DROP INLET SILT TRAP (TYPE A AND B)

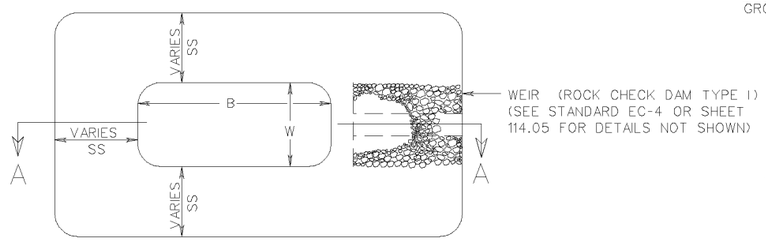
VIRGINIA DEPARTMENT OF TRANSPORTATION

REV. 3/03

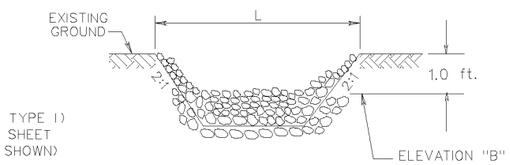
114.07

Additional Info/Revision
Received by VMRC December 26, 2019 /lra

EC-7



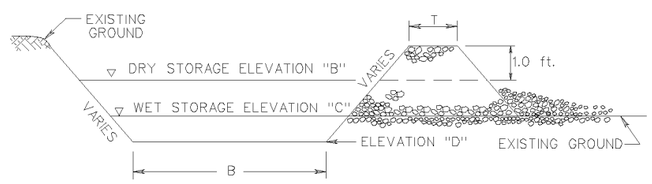
PLAN VIEW OF TEMPORARY SEDIMENT TRAP



TYPICAL SECTION THRU WEIR
(ROCK CHECK DAM TYPE 1)

NOTES:

1. CHECK DAM IS SHOWN FOR ILLUSTRATION ONLY AND IS NOT INCLUDED IN PAYMENT FOR SEDIMENT TRAP.
2. THE SEDIMENT STORAGE VOLUME SHALL BE 134 CUBIC YARDS/ACRE OF TOTAL CONTRIBUTING DRAINAGE AREA AND SHALL CONSIST OF HALF IN THE FORM OF WET STORAGE AND HALF IN THE FORM OF DRY STORAGE.
3. SEE PLANS FOR DIMENSIONS AND ELEVATIONS.



TYPICAL SECTION (A-A) THRU
TEMPORARY SEDIMENT TRAP

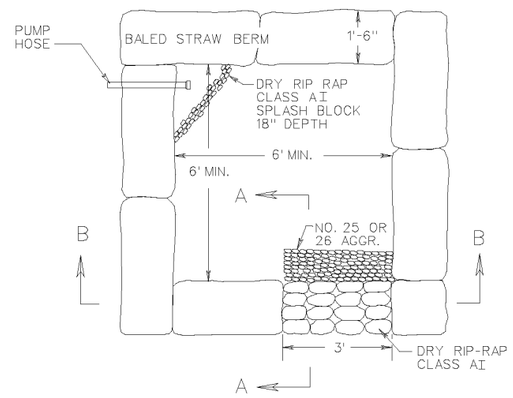
TYPICAL SEDIMENT TRAP VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
	107 303

114.08

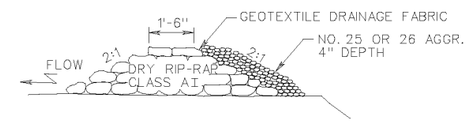
Additional Info/Revision
Received by VMRC December 26, 2019 /lra

EC-8

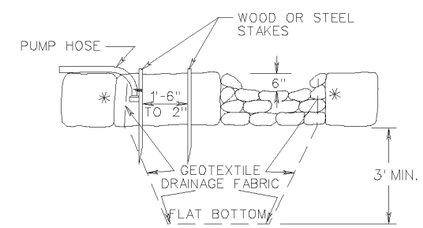
TYPICAL DEWATERING BASIN



PLAN



SECTION A-A



SECTION B-B

* GEOTEXTILE DRAINAGE FABRIC TO COVER INSIDE FACE OF BALED STRAW BERM.

NOTES:

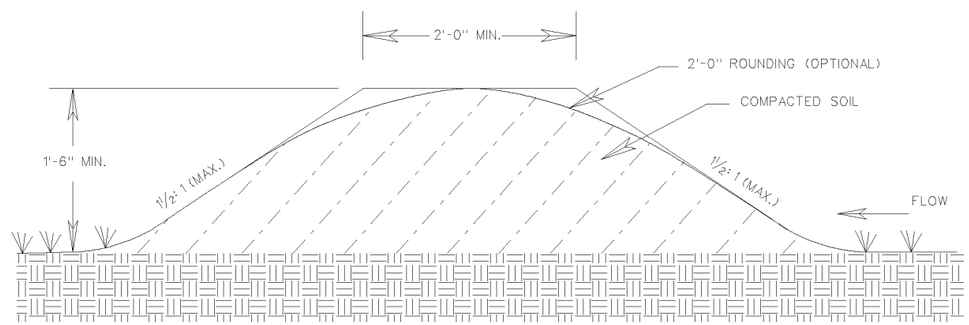
1. DEWATERING BASIN SIZE SHALL BE DETERMINED BY THE FORMULA 16 X GAL./MIN. OF PUMP = CU. FT. OF STORAGE CAPACITY.
2. THIS WORK SHALL CONSIST OF THE CONSTRUCTION OF A DEWATERING BASIN FOR THE PURPOSE OF RECEIVING SEDIMENT-LADENED WATER PUMPED FROM A CONSTRUCTION SITE TO ALLOW FOR FILTRATION BEFORE IT REENTERS THE WATERWAY. PUMPING INTO THESE BASINS SHALL CEASE WHEN THE FLOW FROM THE BASIN BECOMES SEDIMENT-LADENED.
3. SURFACE WATER FLOW SHALL BE DIVERTED AROUND THIS DEVICE.
4. THE OUTFALL FROM THE BASIN(S) SHALL HAVE A STABILIZED CONVEYANCE TO RECEIVING WATERS.
5. ONCE THE DEWATERING BASIN BECOMES FILLED TO HALF OF THE EXCAVATED DEPTH, ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS.
6. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED AND THE ENGINEER APPROVES THEIR REMOVAL. GROUND CONTOURS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION UNLESS SPECIFICALLY APPROVED OTHERWISE BY THE ENGINEER.
7. SYNTHETIC PRODUCTS APPROVED BY VDOT'S NEW PRODUCTS COMMITTEE AS A SUBSTITUTE MAY BE USED IN LIEU OF THIS DESIGN. HOWEVER, VDOT WILL ONLY COMPENSATE THE CONTRACTOR UP TO THE BID PRICE PER EACH AT EACH SITE.

SPECIFICATION REFERENCE	DEWATERING BASIN
107 303	VIRGINIA DEPARTMENT OF TRANSPORTATION

114.09

Additional Info/Revision
Received by VMRC December 26, 2019 /lra

EC-9



TEMPORARY DIVERSION DIKE

NOTE:

1. THE CHANNEL CREATED BEHIND THE DIKE SHALL HAVE A POSTIVE GRADE TO A STABILIZED OUTLET. THE CHANNEL SHALL BE STABILIZED, AS NECESSARY, TO PREVENT EROSION.
2. TEMPORARY DIVERSION DIKE WILL BE MEASURED AND PAID FOR IN ACCORDANCE WITH SECTION 303 OF THE SPECIFICATIONS.

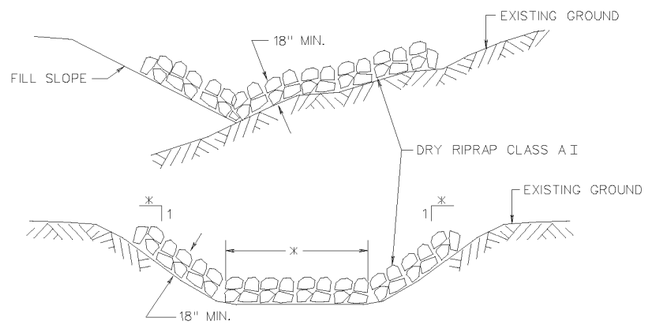
	SPECIFICATION REFERENCE
TEMPORARY DIVERSION DIKE VIRGINIA DEPARTMENT OF TRANSPORTATION	303

114.10

Additional Info/Revision
Received by VMRC December 26, 2019 /lra

ESC-INS

SUGGESTED METHOD OF TEMPORARILY PLACING RIPRAP FOR EROSION CONTROL IN CHANNELS, DITCHES, & AT TOE OF FILL SLOPES

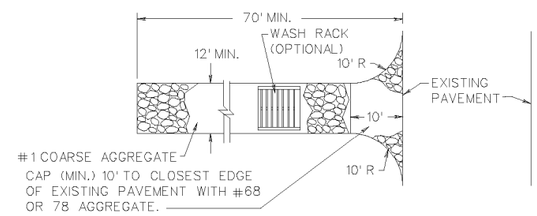


NOTES:

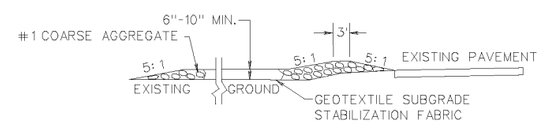
1. THE DEPTH OF PROTECTION WILL DEPEND ON WHATEVER DEPTH IS ATTAINABLE, WITH THE RIPRAP BEING EVENLY SPREAD WITH THE QUANTITY SHOWN ON THESE PLANS. RIPRAP MAY BE ADDED OR DELETED AS FOUND NECESSARY BY THE ENGINEER.

* SIDE SLOPES AND BOTTOM WIDTH (IF TRAPEZOIDAL) SHOWN IN TYPICAL SECTION OF PROPOSED DITCH OR CHANNEL.

MINIMUM REQUIREMENTS FOR STABILIZED CONSTRUCTION ENTRANCE



PLAN



PROFILE

1. SURFACE WATER SHALL BE PIPED UNDER THE CONSTRUCTION ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY SHALL BE REMOVED IMMEDIATELY.

3. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

4. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER HEAVY USE AND EACH RAIN.

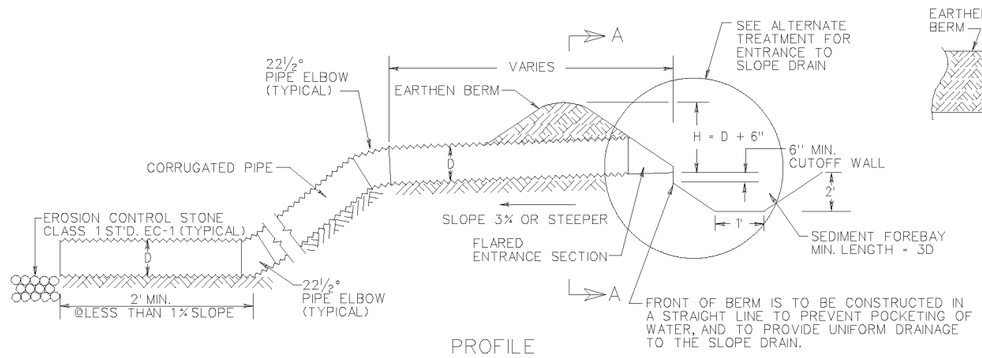
SHEET 1 OF 3

SPECIFICATION REFERENCE	TEMPORARY EROSION & SILTATION CONTROL	
107 303	VIRGINIA DEPARTMENT OF TRANSPORTATION	REV. 7/04 115.01

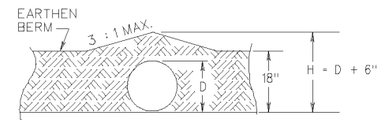
Additional Info/Revision
Received by VMRC December 26, 2019 /lra

ESC-INS

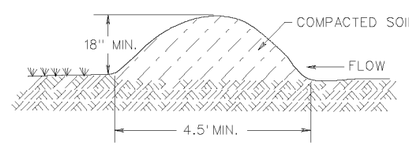
TEMPORARY BERM & SLOPE DRAIN



PROFILE

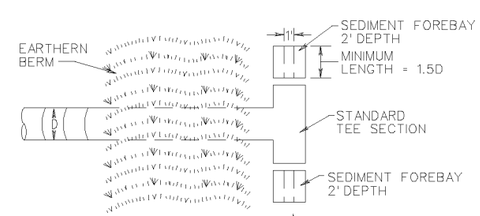


SECTION A-A

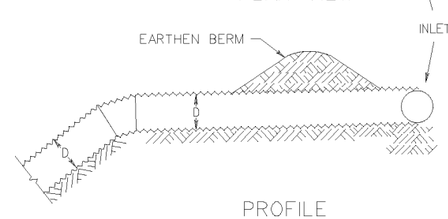


EARTHEN BERM

ALTERNATE ENTRANCE TREATMENT



PLAN VIEW



PROFILE

SIZE OF SLOPE DRAIN	
MAXIMUM DRAINAGE AREA (ACRES)	MINIMUM PIPE DIAMETER, D (IN.)
0.5	12
1.5	18
2.5	21
3.0	24

NOTES

1. SLOPE DRAIN SHALL BE SECURELY STAKED TO THE SLOPE, AT 10' (OR LESS) INTERVALS.
2. THE SLOPE DRAIN SECTIONS SHALL BE SECURELY FASTENED TOGETHER AND HAVE WATER TIGHT FITTINGS.

SHEET 2 OF 3

TEMPORARY EROSION & SILTATION CONTROL

VIRGINIA DEPARTMENT OF TRANSPORTATION

115.02

SPECIFICATION REFERENCE

107
303

Additional Info/Revision
Received by VMRC December 26, 2019 /lra

RESTORATION MEASURES FOR TEMPORARY IMPACTS

Where practicable, the following measures will be implemented to minimize impacts to aquatic resources for temporary impacts:

•E2RS2:
- o Rock/ riprap will be replaced once piles are removed to return structural community for benthic wildlife use.
- o Riprap will be clean and from an approved quarry.

•E2US2:
- o Pile holes will be filled with clean fill and will return to existing habitat conditions.
- o Wetland access areas will be graded to pre-existing biological, chemical, and hydrological conditions.

•E2US3:
- o Wetland matting and low ground pressure equipment will be used for temporary access.
- o Pile holes will be filled with clean fill to match adjacent elevations.
- o Wetland matting will be removed and access areas will be returned to original elevations as well as to pre-existing biological, chemical, and hydrological conditions.

•E2EM:
- o Wetland matting and low ground pressure equipment will be used for temporary access.
- o Pile holes will be filled with clean fill to match adjacent elevations.
- o Wetland matting will be removed and access areas will be restored to original elevations as well as to pre-existing biological, chemical, and hydrological conditions.
- o Disturbed areas will be sprigged with appropriate native vegetation (for example: low marsh = Spartina alterniflora, high marsh = S. patens) to match existing reference wetland.
- o Spartina sprigging will consist of nursery stock peat pot plugs planted on one-foot centers.

• E2SS:
- o Shrubs may be cleared with stumps left in place. Planting of shrubs is not expected as stump sprout from cut shrubs is expected.
- o Wetland matting and low ground pressure equipment will be used for temporary access.
- o Pile holes will be filled with clean fill to match adjacent elevations.
- o Wetland matting will be removed and access areas will be restored to original elevations as well as to pre-existing biological, chemical, and hydrological conditions.
- o If temporary access areas are denuded of herbaceous vegetation the appropriate salt-tolerant seed mix or plugging of native vegetation will be required.
- o Seeding will follow the VDOT and DEQ recommended densities, fertilizing, and mulching requirements.

•E2FO:
- o Tree limbs may be removed for accessibility.
- o If tree clearing required, stumps will be left in place. Planting of trees is not expected as stump sprout from cut trees is expected.
- o Wetland matting and low ground pressure equipment will be used for temporary access.
- o Wetland matting will be removed and access areas will be restored to original elevations as well as to pre-existing biological, chemical, and hydrological conditions.
- o If temporary access areas are denuded of herbaceous vegetation the appropriate salt-tolerant seed mix or plugging of native vegetation will be required.
- o Seeding will follow the VDOT and DEQ recommended densities, fertilizing, and mulching requirements.

•PEM:
- o Wetland matting and low ground pressure equipment will be used for temporary access.
- o Pile holes will be filled with clean fill to match adjacent elevations.
- o Wetland matting will be removed and access areas will be restored to original elevations as well as to pre-existing biological, chemical, and hydrological conditions.
- o Disturbed areas will be seeded with an approved wetland seed mixture that compares to existing reference wetland, such as ERNMX-120 OBL-FACW Perennial Food and Cover Wetland Mix.
- o Seeding will follow the VDOT and DEQ recommended densities, fertilizing, and mulching requirements.

•PSS:
- o Shrubs may be cleared with stumps left in place. Planting of shrubs is not expected as stump sprout from cut shrubs is expected.
- o Wetland matting and low ground pressure equipment will be used for temporary access.
- o Pile holes will be filled with clean fill to match adjacent elevations.
- o Wetland matting will be removed and access areas will be restored to original elevations as well as to pre-existing biological, chemical, and hydrological conditions.
- o If temporary access areas are denuded of herbaceous vegetation the appropriate seed mix or plugging of native vegetation will be required. Seeding will follow the VDOT and DEQ recommended densities, fertilizing, and mulching requirements.

•PFO:
- o Tree limbs may be removed for access.
- o If tree clearing required, stumps will be left in place. Planting of trees is not expected as stump sprout from cut trees is expected.
- o Wetland matting and low ground pressure equipment will be used for temporary access.
- o Wetland matting will be removed and access areas will be restored to original elevations as well as to pre-existing biological, chemical, and hydrological conditions.
- o If temporary access areas are denuded of herbaceous vegetation the appropriate seed mix or plugging of native vegetation will be required. Seeding will follow the VDOT and DEQ recommended densities, fertilizing, and mulching requirements.

•R2:
- o Will restore grade and banks to existing conditions and to match the upstream and downstream banks.
- o Bare banks will be seeded with an approved riparian seed mixture that compares to existing reference waters, such as ERNMX-892 VA Outer Coastal Plain Riparian Mix.
- o Seeding will follow the recommended densities, fertilizing, and mulching requirements.

•E1OW, SAV, and PUB do not currently have any restoration measures.

If, after the aforementioned measures have been implemented, the temporary wetland impact areas fail to exhibit all three wetland parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) after work has concluded in the area of impact, these would be considered to be permanent wetland losses. HRCP would provide additional compensatory mitigation for these areas at standard compensation ratios based on the pre-disturbance cover-type (e.g., 2:1 ratio for former PFO areas, etc.).

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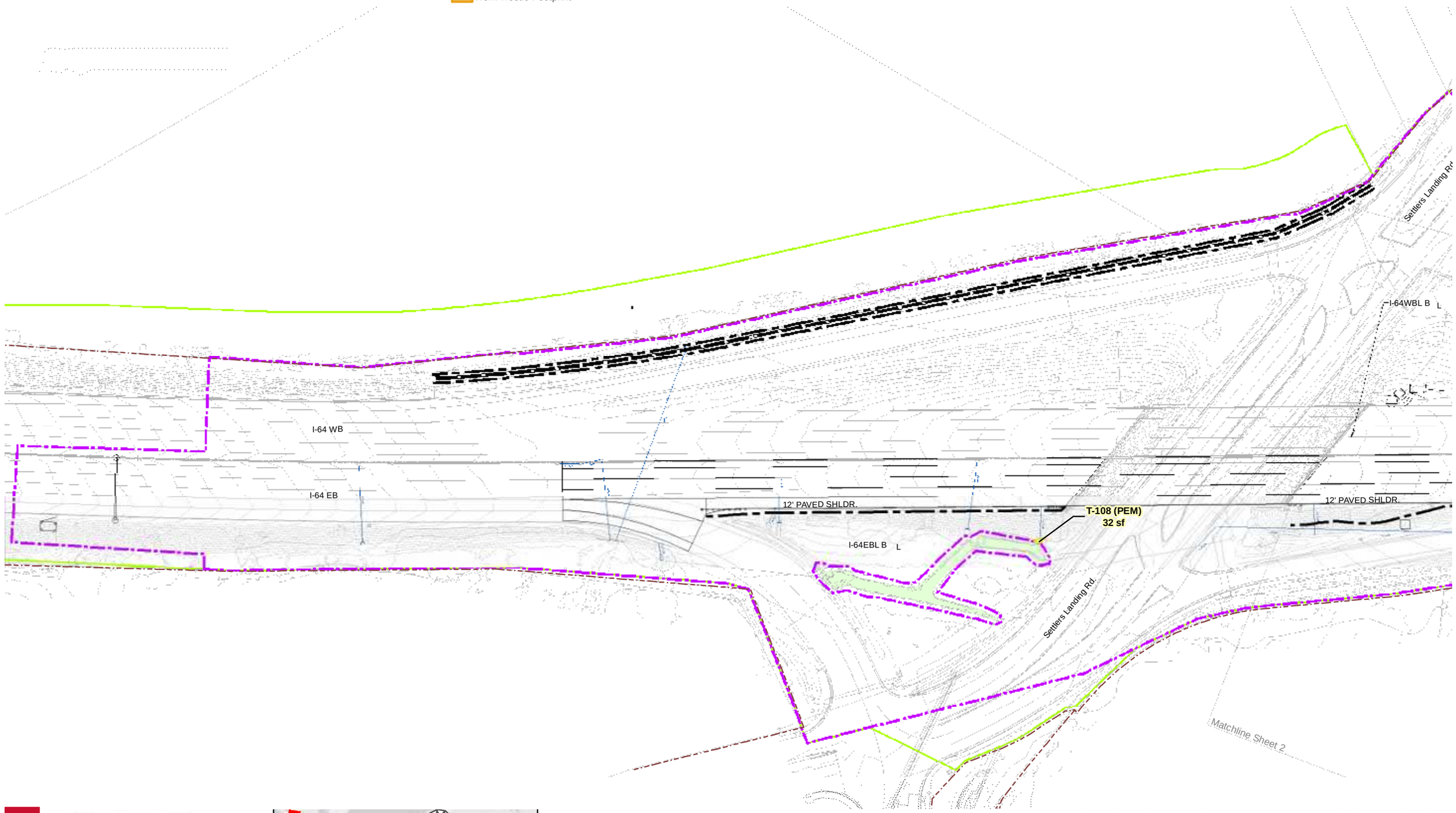
Extended Fill Impact
MOT Trestle Impact
Work Trestle Impact
Jump Trestle Impact
Dredge Impact
Temporary Impact
Permanent Pile Impact
Limit of Disturbance
Jump Trestle Footprint
MOT Trestle Footprint
Work Trestle Footprint
VDOT Right of Way
Sound Wall
Retaining Wall
Limit of Grading
Proposed Design
Underground Utilities
Proposed Drainage
Temporary Drainage
Existing Roadway and Drainage
Existing Contour
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
Navigation Constraint
Wetland Delineation Boundary
E1OW, Deepest
E1OW, Deeper
E1OW, Deep
E1OW, Mid-Depth
E1OW, Shallow
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6
SAV



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Feet

DATA SOURCE: VIMS, VDOT, FHWA

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Permanent Pile Impact
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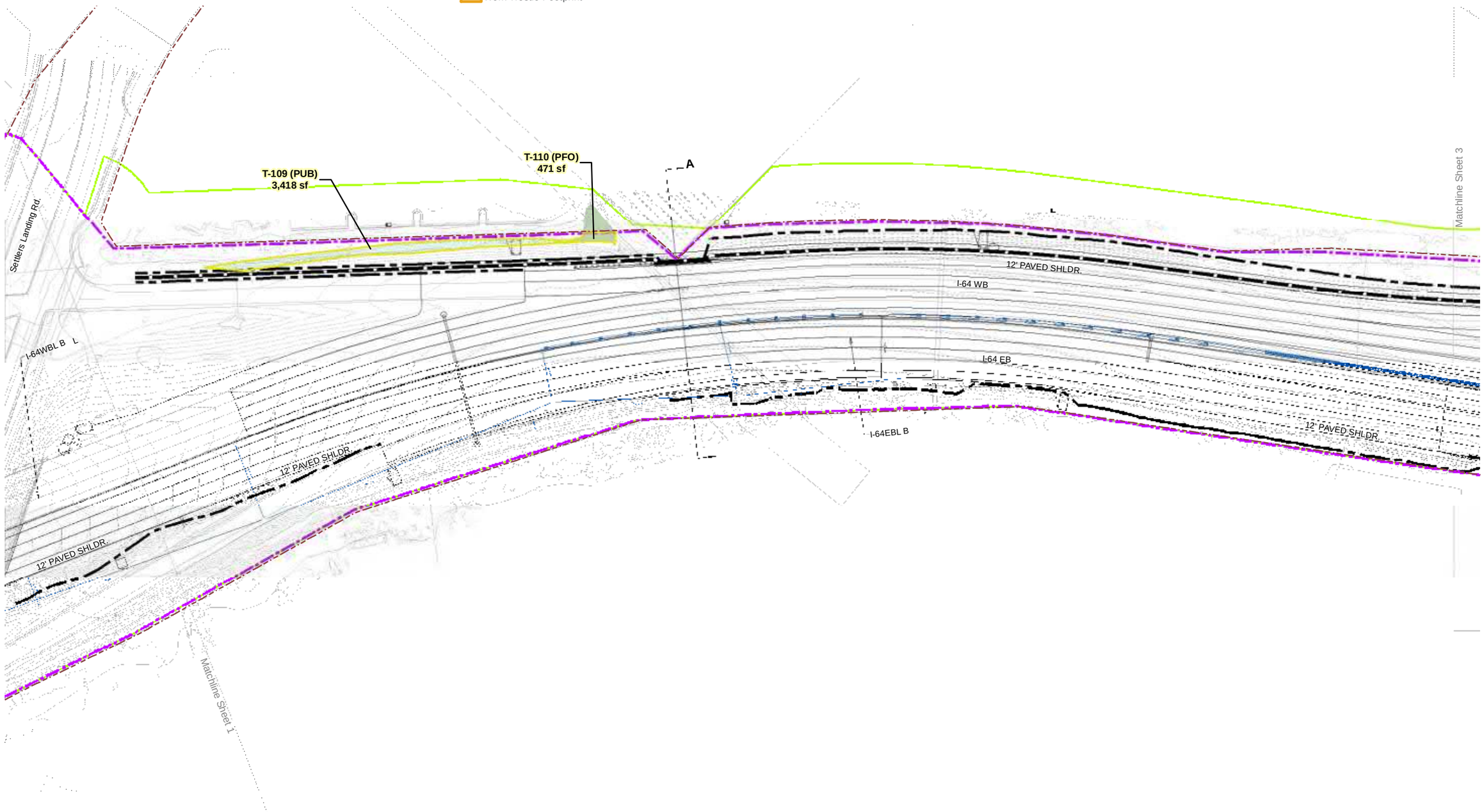
R4
R6
SAV



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DATA SOURCE: VIMS, VDOT, FHWA

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Dredge Impact
Temporary Impact
Permanent Pile Impact
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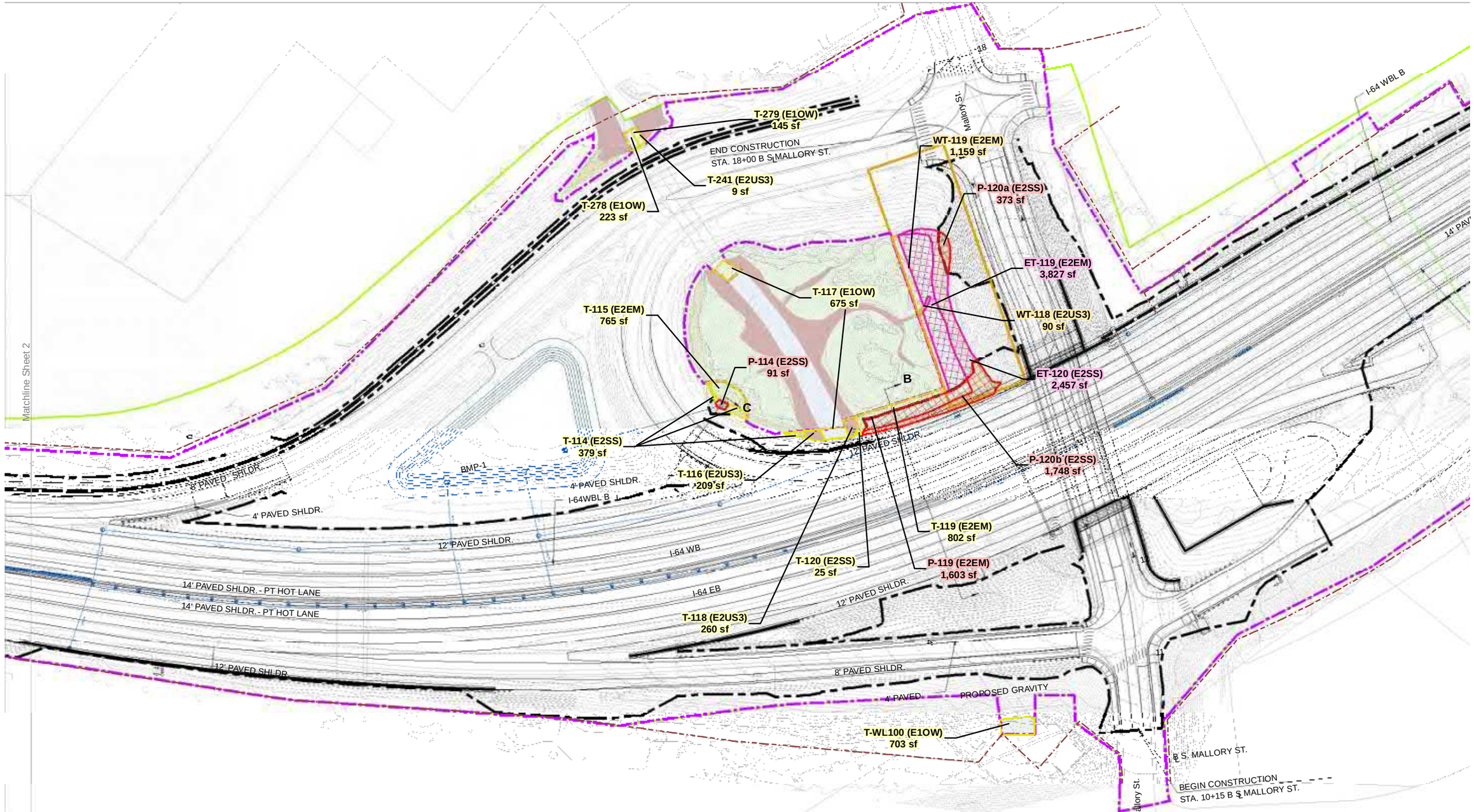
R6
SAV



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DATA SOURCE: VIMS, VDOT, FHWA

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E1OW, Deeper
E1OW, Deep
E1OW, Mid-Depth
E1OW, Shallow
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E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6
SAV

0 50 100
Feet

DATA SOURCE: VIMS, VDOT, FHWA

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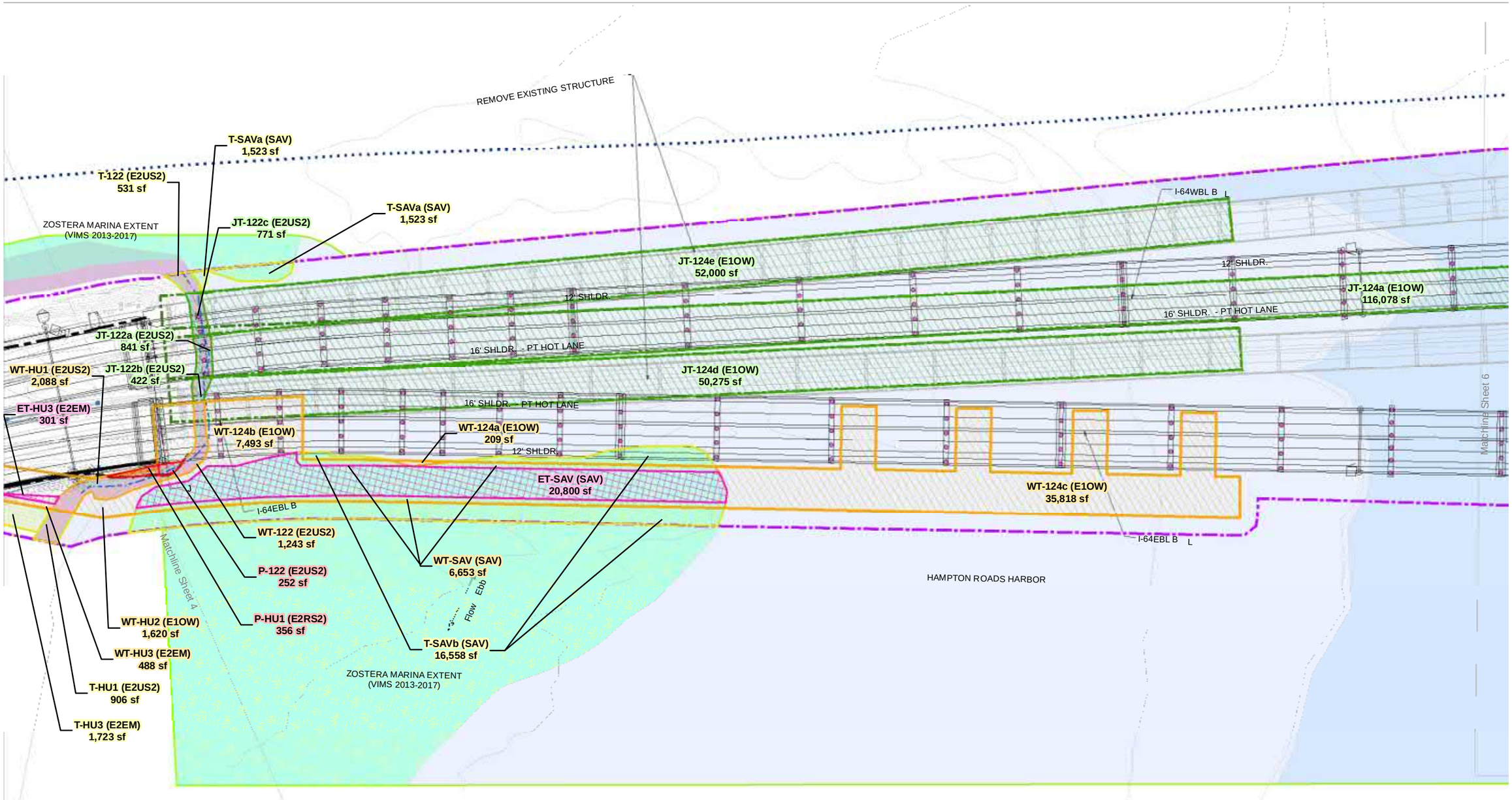

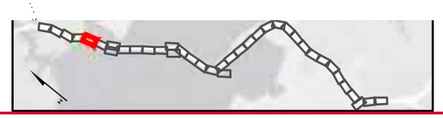

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DATA SOURCE: VIMS, VDOT, FHWA

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E2RF
E2RS2
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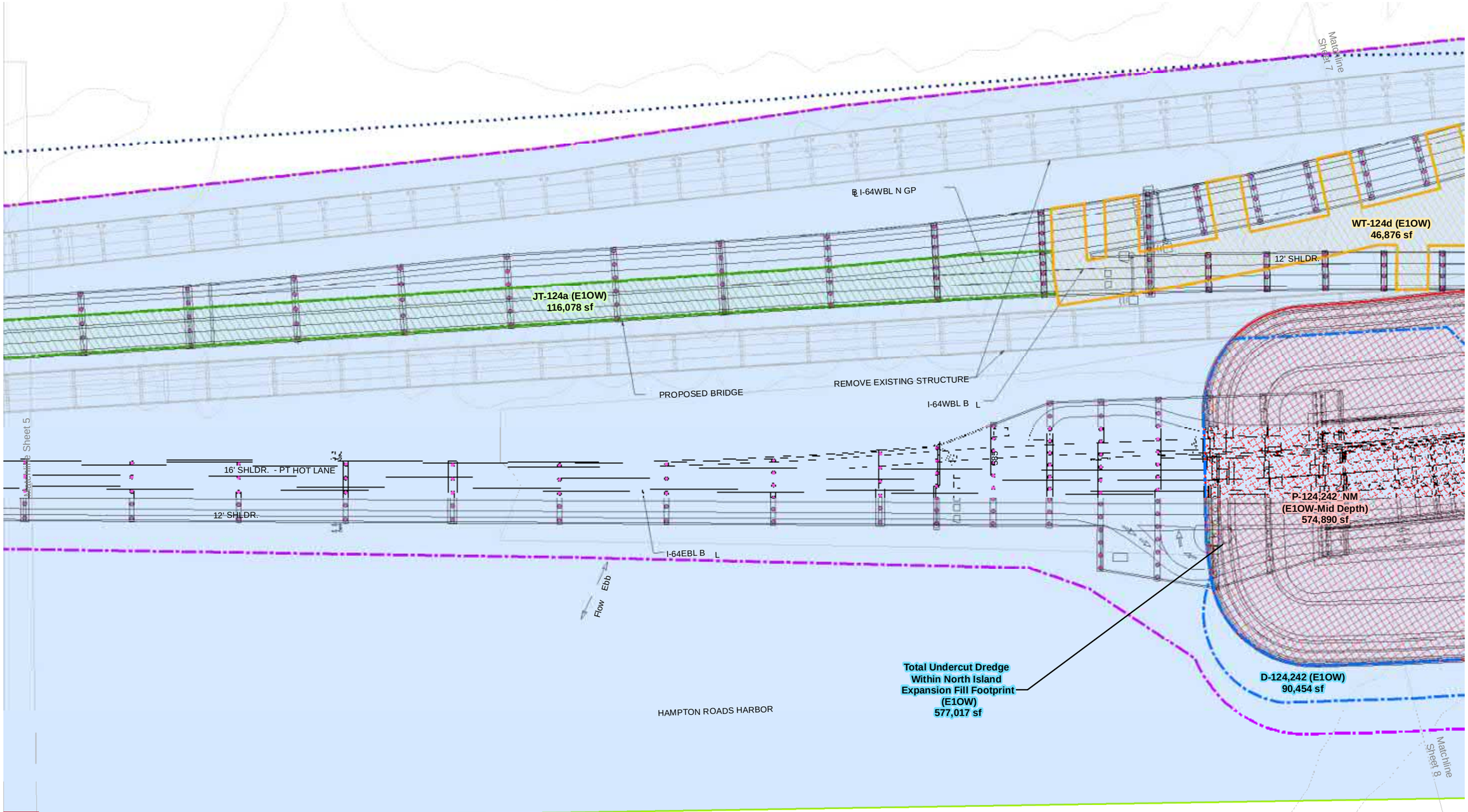

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DATA SOURCE: VIMS, VDOT, FHWA

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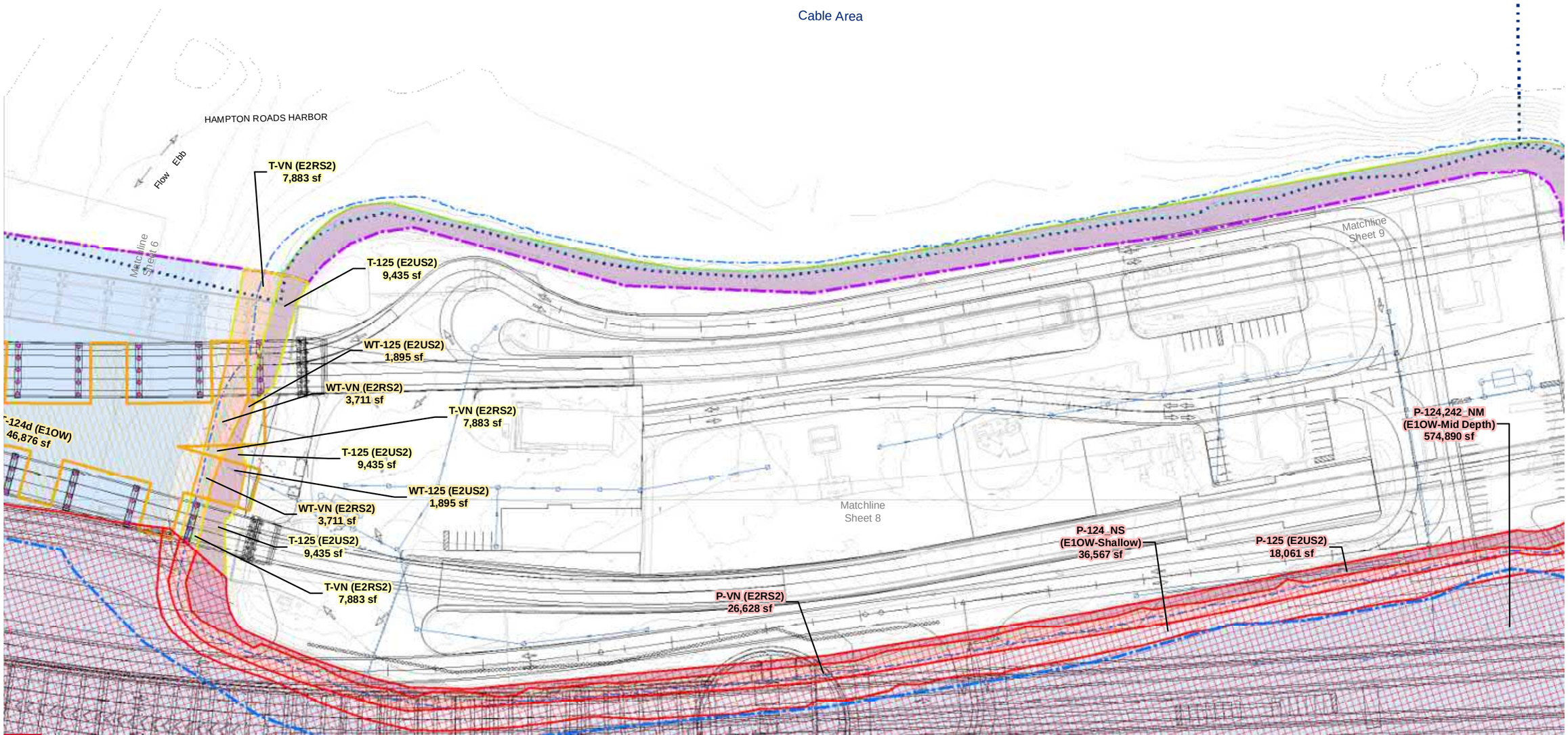
R6
SAV

Cable Area



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DATA SOURCE: VIMS, VDOT, FHWA

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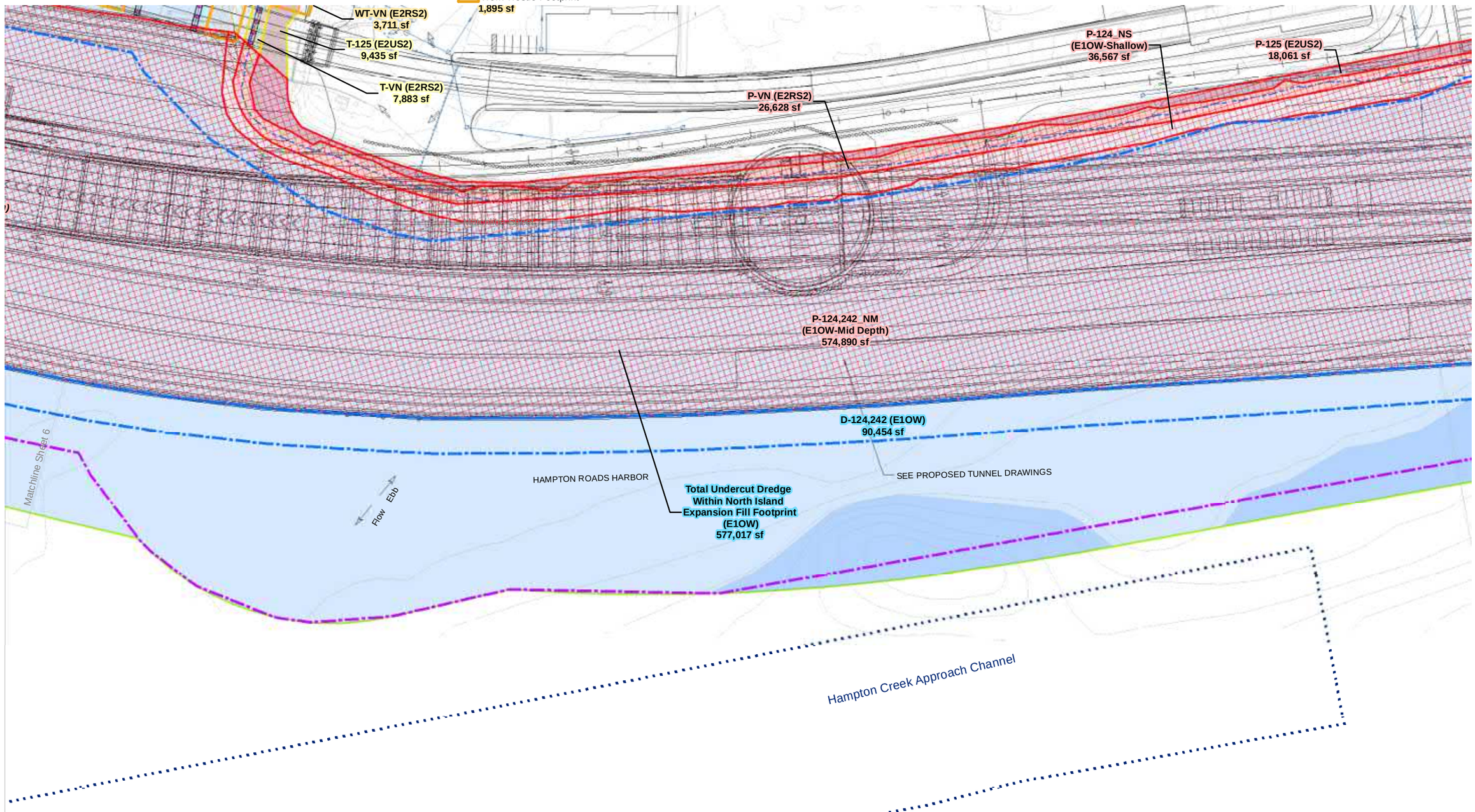

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DATA SOURCE: VIMS, VDOT, FHWA

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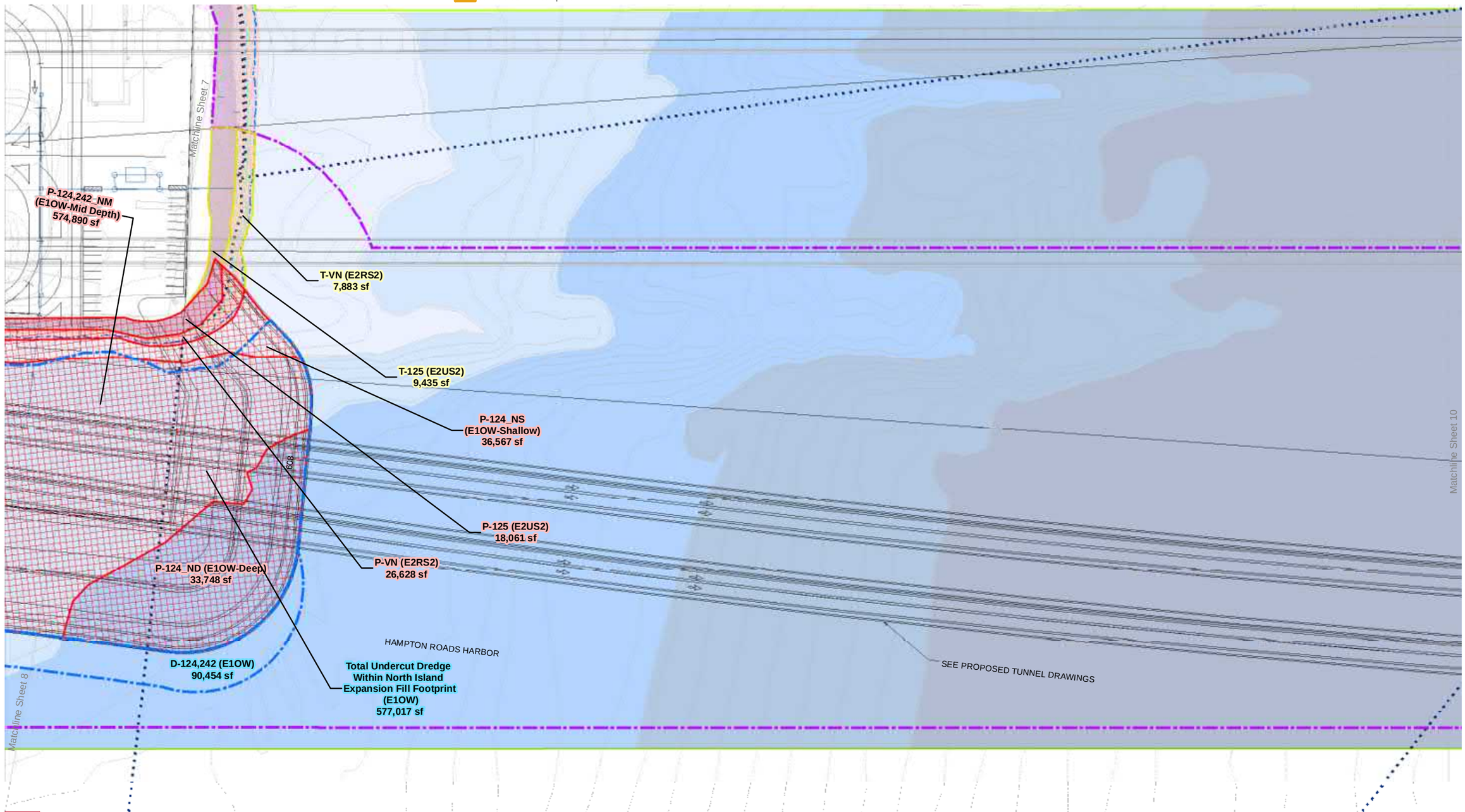

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DATA SOURCE: VIMS, VDOT, FHWA

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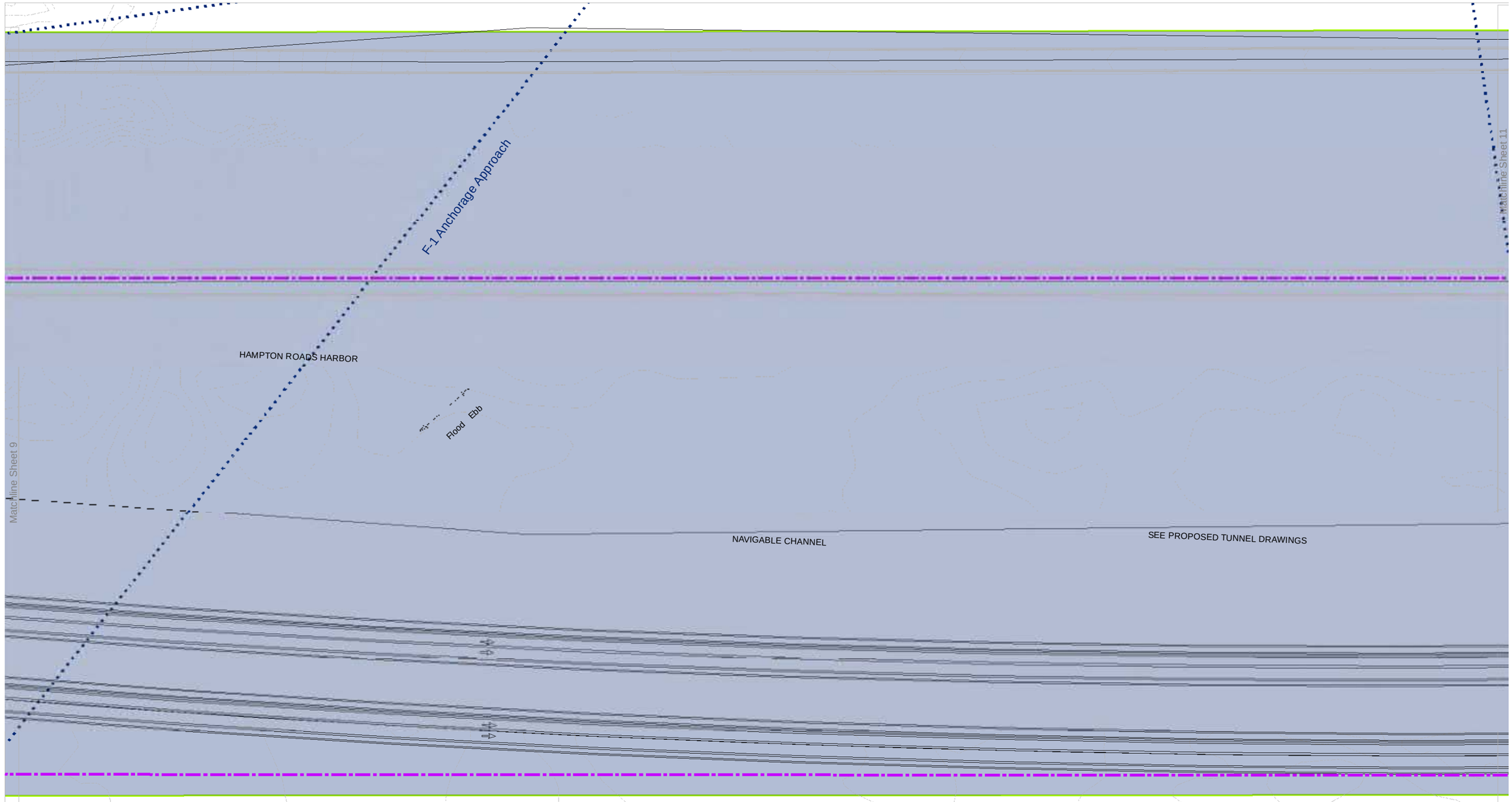
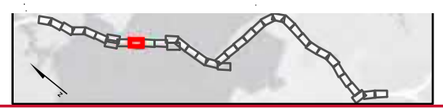
R6
SAV





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DATA SOURCE: VIMS, VDOT, FHWA

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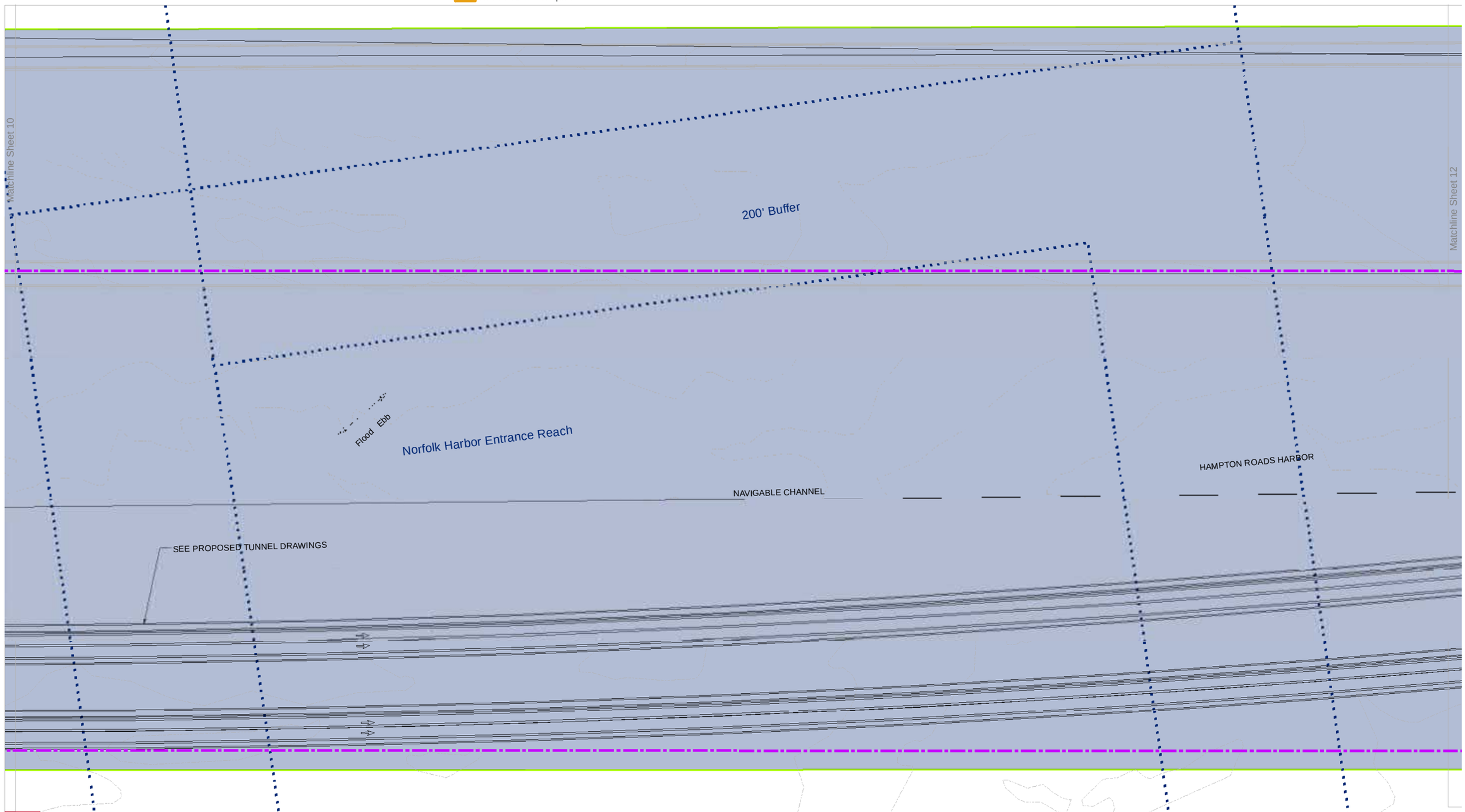
SAV



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DATA SOURCE: VIMS, VDOT, FHWA

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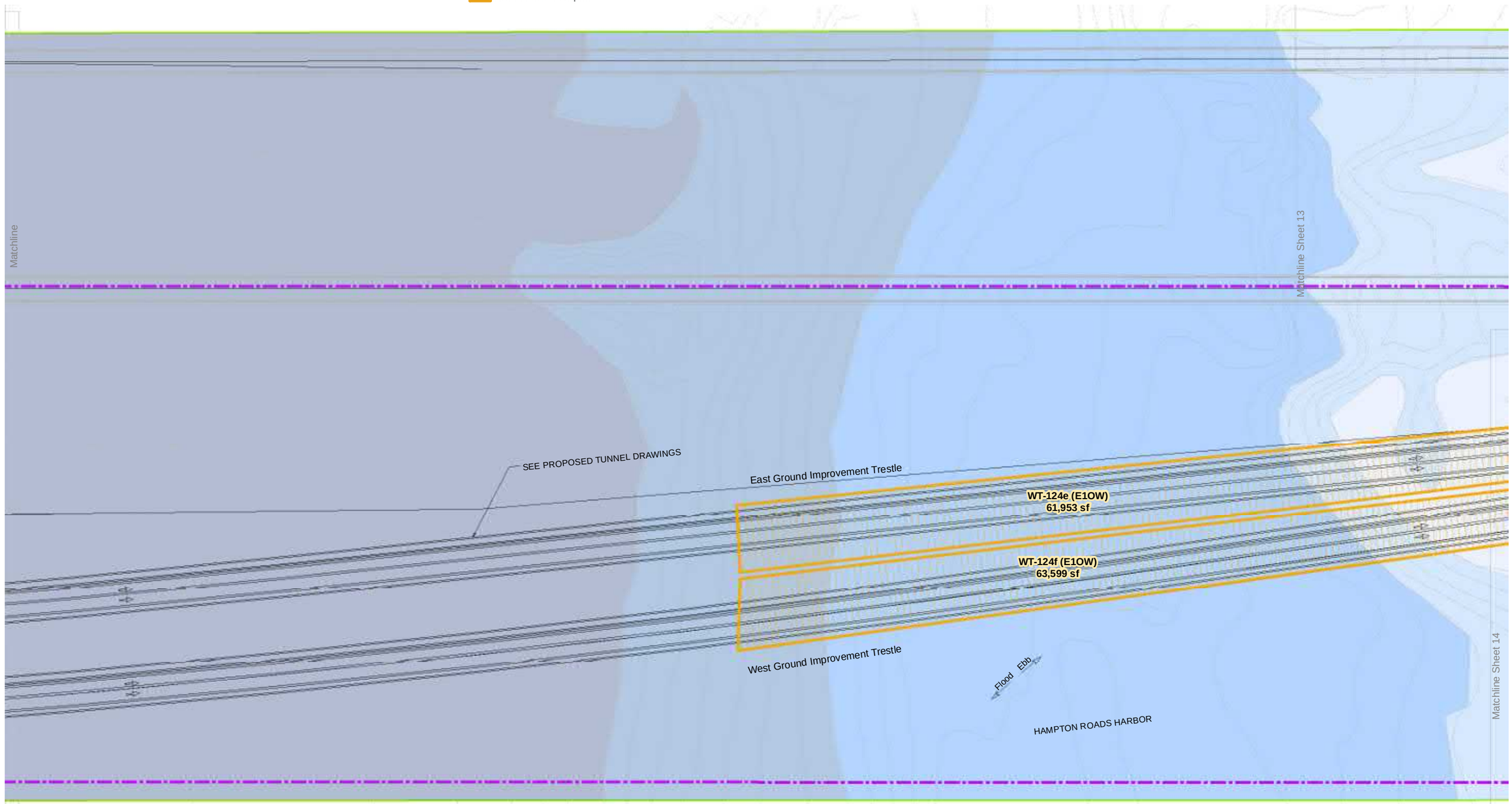

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DATA SOURCE: VIMS, VDOT, FHWA

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E1OW, Deeper
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E2RS2
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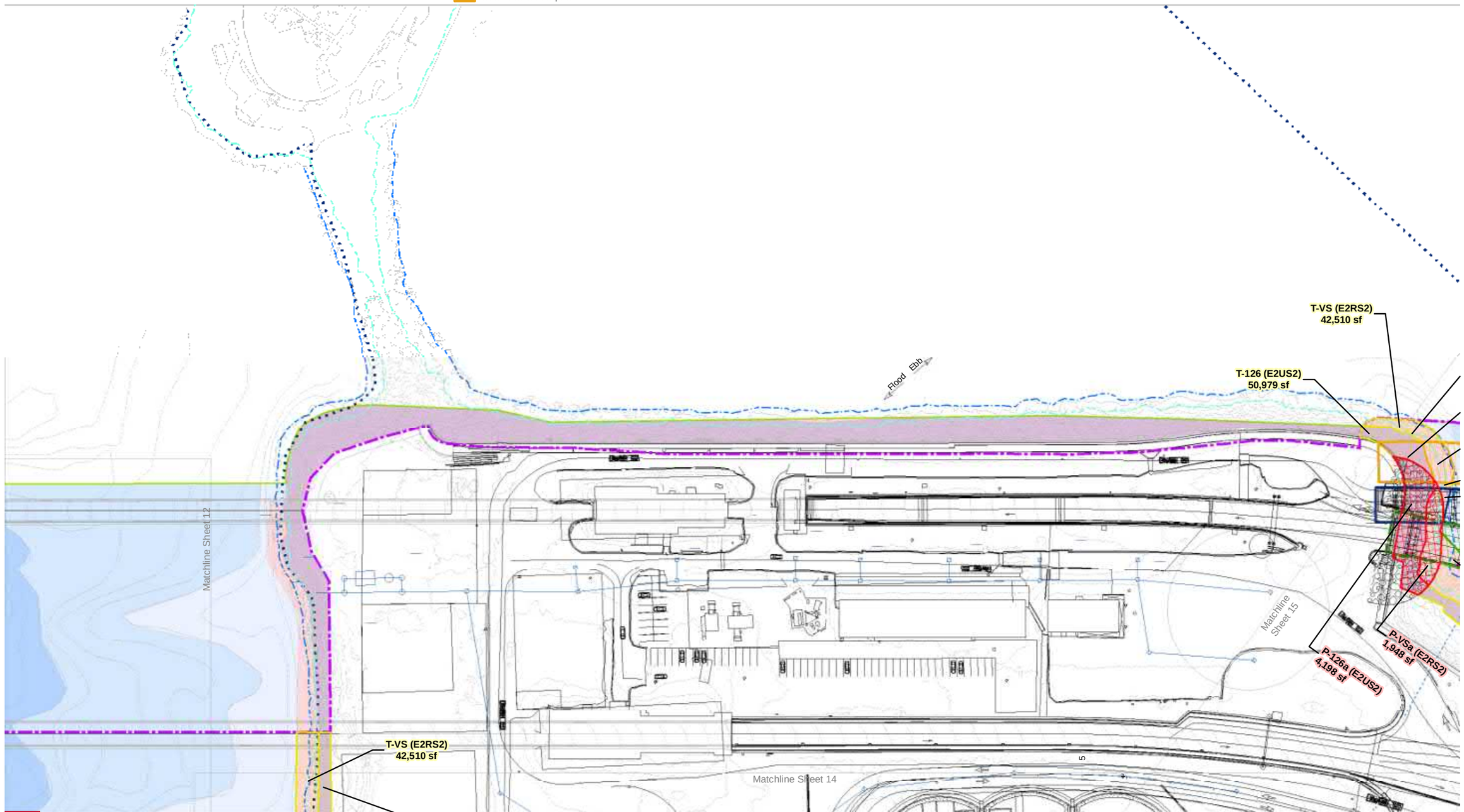
SAV



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DATA SOURCE: VIMS, VDOT, FHWA

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Mean Low Water (-1.48 ft)
Navigation Constraint
Wetland Delineation Boundary
E1OW, Deepest
E1OW, Deeper
E1OW, Deep
E1OW, Mid-Depth
E1OW, Shallow
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
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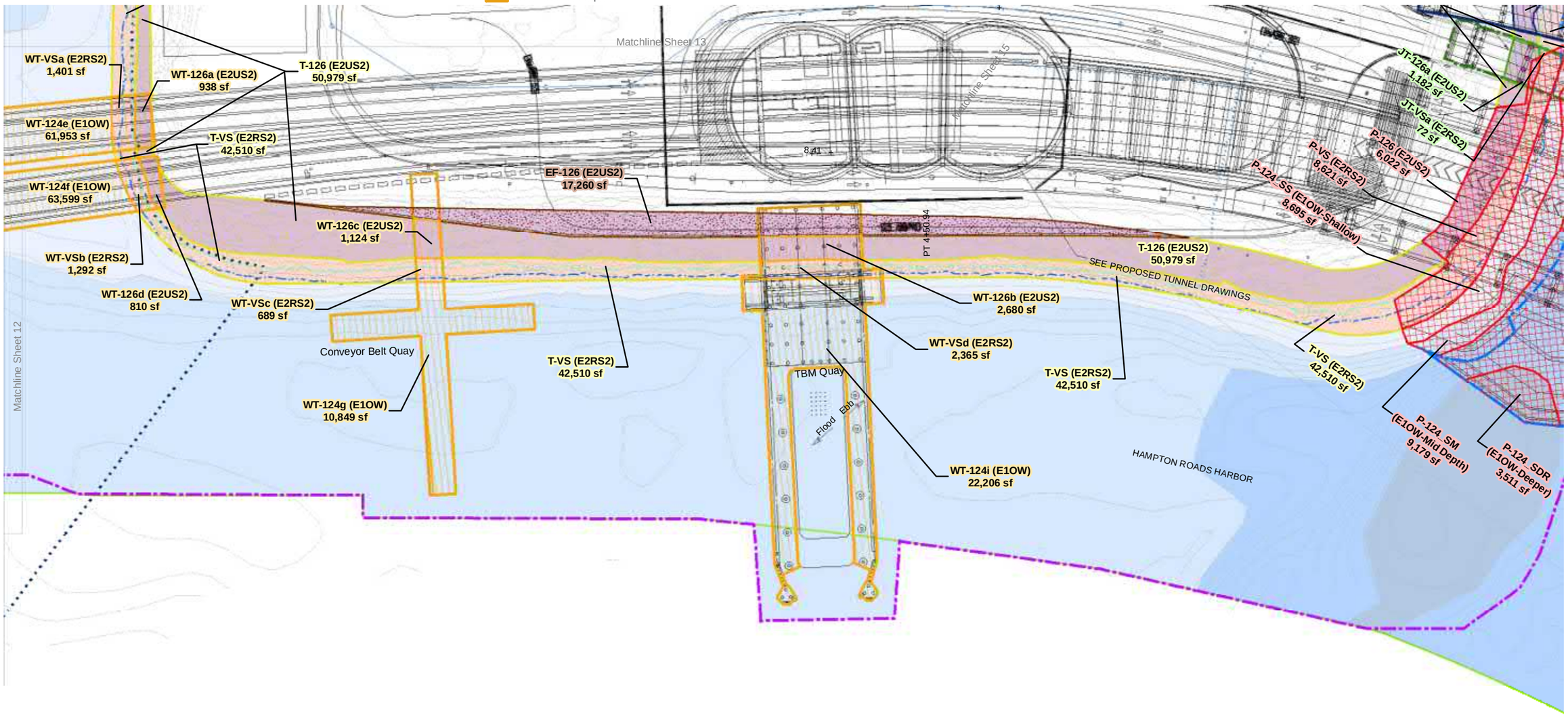
R4
R6
SAV



0 50 100
Feet

DATA SOURCE: VIMS, VDOT, FHWA

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JOINT PERMIT APPLICATION IMPACT PLATES

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Permanent Impact
Permanent Conversion Impact
Permanent Shading Impact
Extended Shading Impact
Extended Fill Impact
MOT Trestle Impact
Work Trestle Impact
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Dredge Impact
Temporary Impact
Permanent Pile Impact
Limit of Disturbance
Jump Trestle Footprint
MOT Trestle Footprint
Work Trestle Footprint
VDOT Right of Way
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Retaining Wall
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Underground Utilities
Proposed Drainage
Temporary Drainage
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PUB
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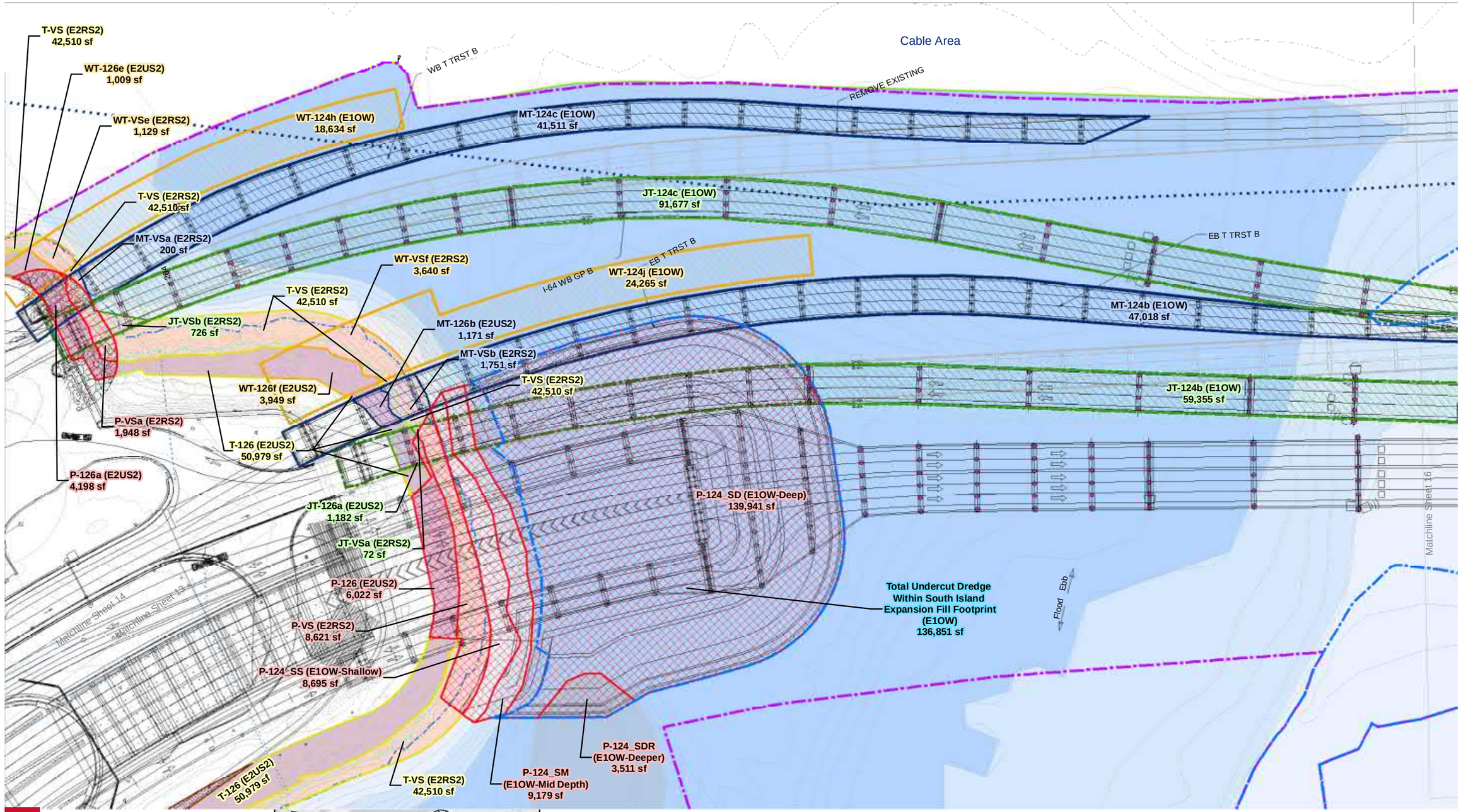
R4
R6
SAV



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0 50 100 Feet

DATA SOURCE: VIMS, VDOT, FHWA

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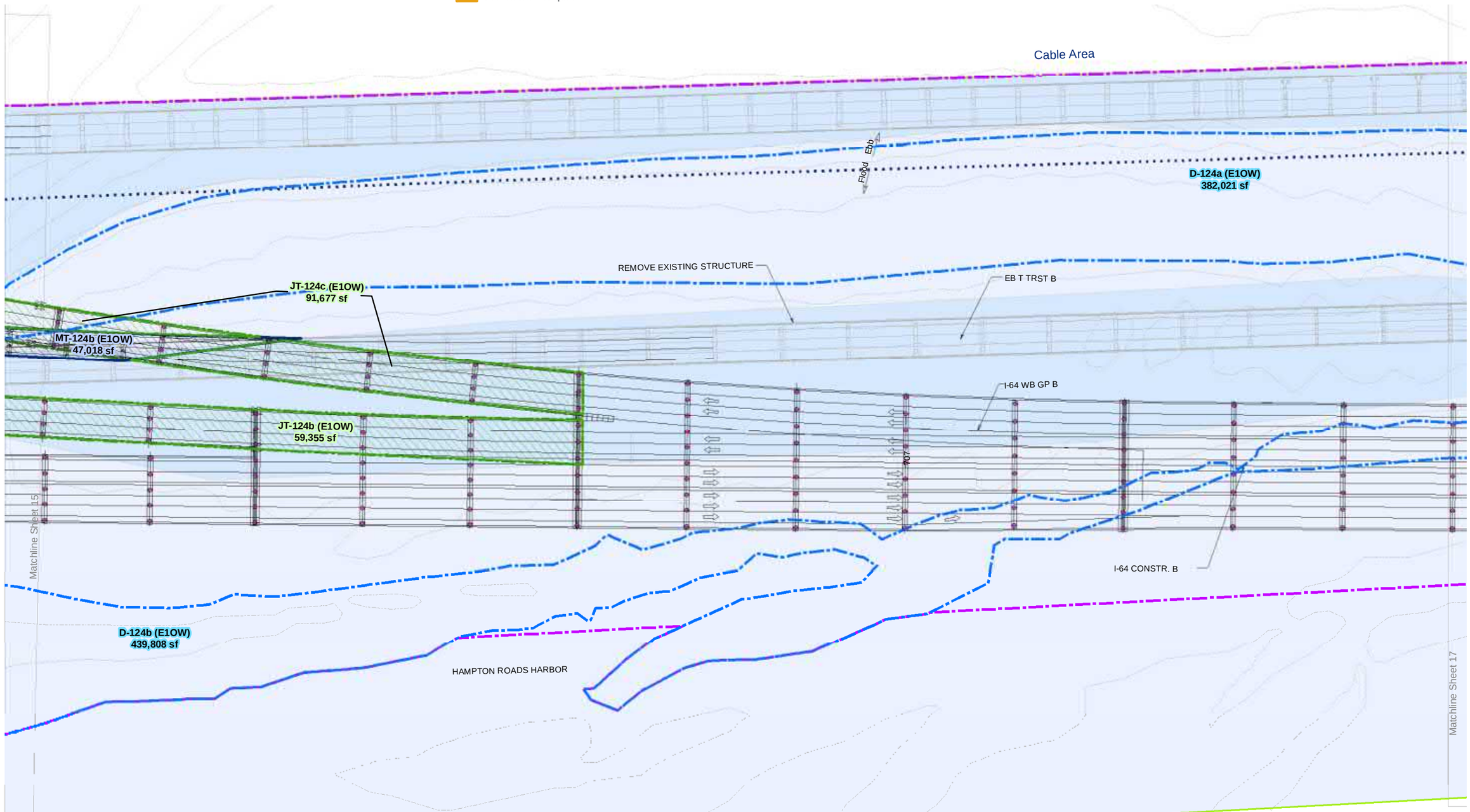

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DATA SOURCE: VIMS, VDOT, FHWA

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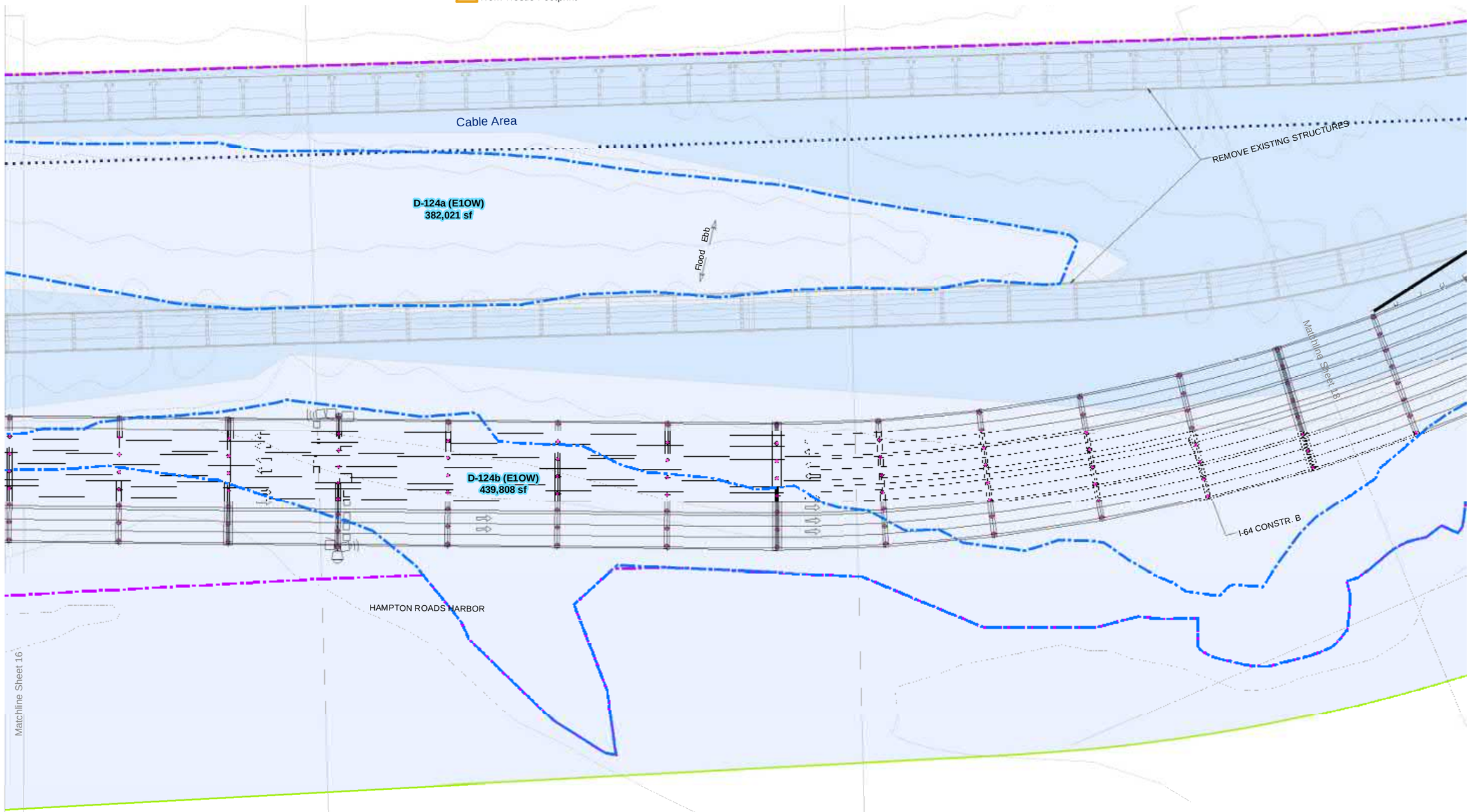

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DATA SOURCE: VIMS, VDOT, FHWA

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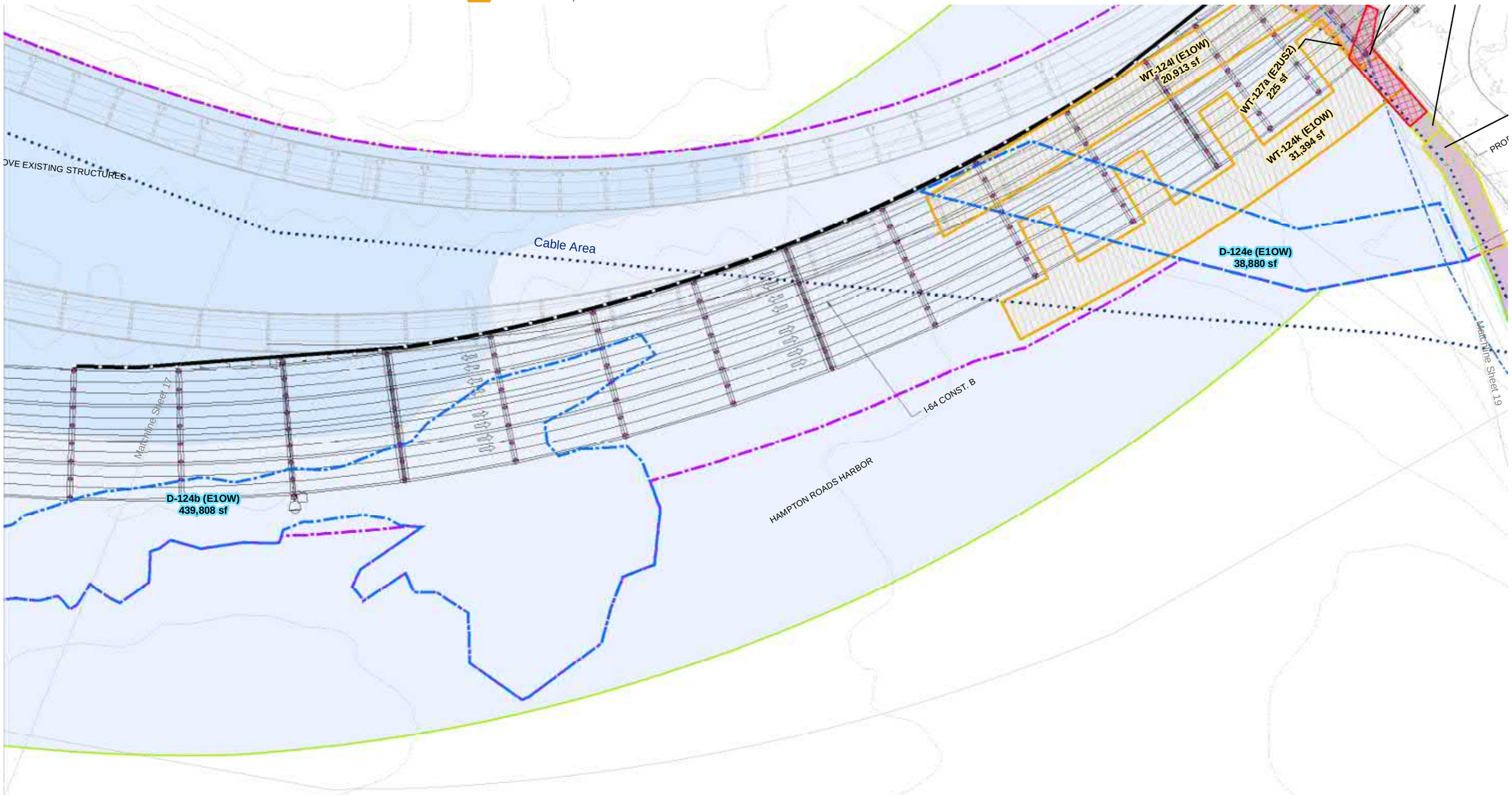

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Feet

DATA SOURCE: VIMS, VDOT, FHWA

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JOINT PERMIT APPLICATION IMPACT PLATES

SHEET 18 OF 38

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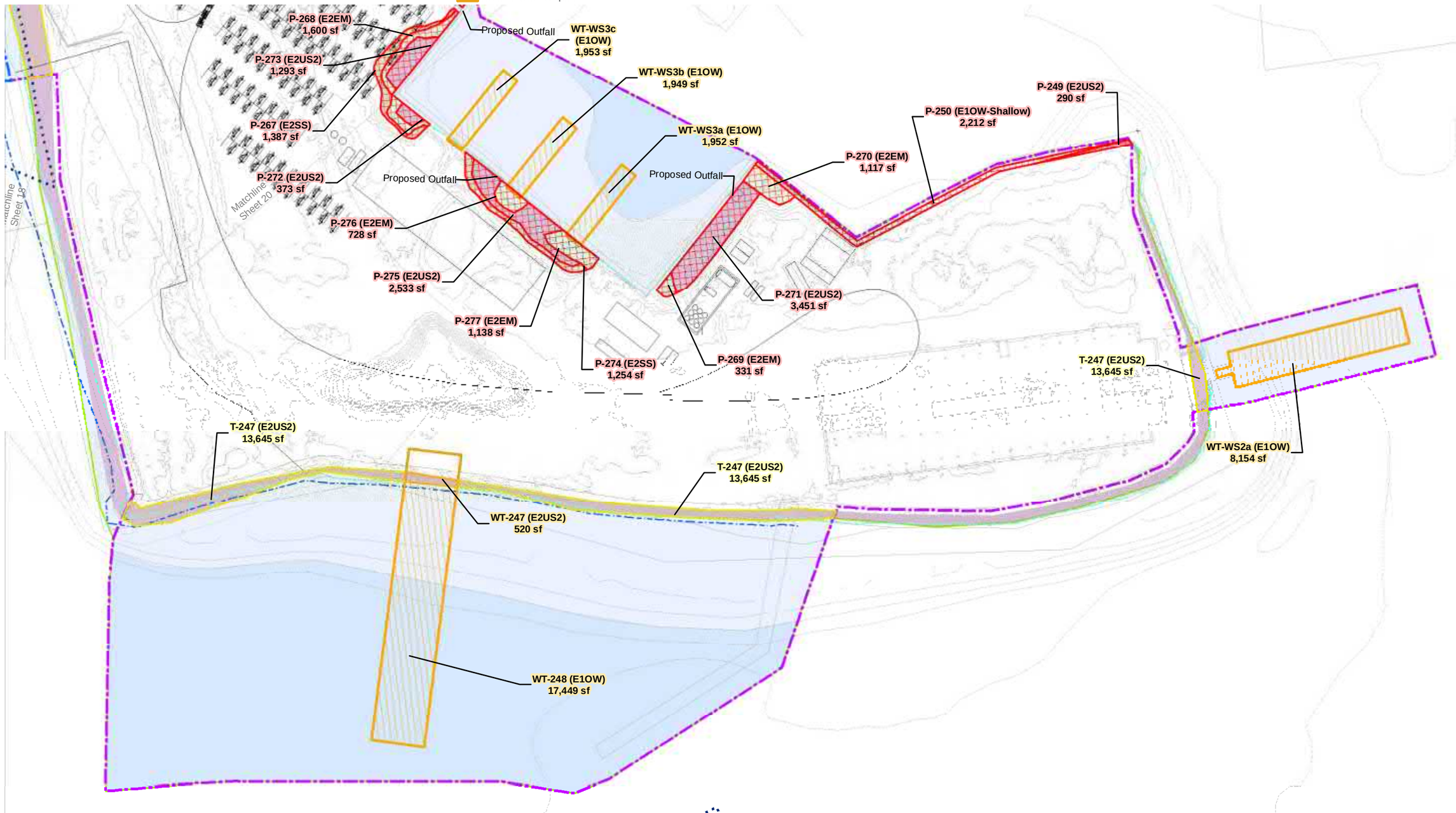

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0 50 100
Feet

DATA SOURCE: VIMS, VDOT, FHWA

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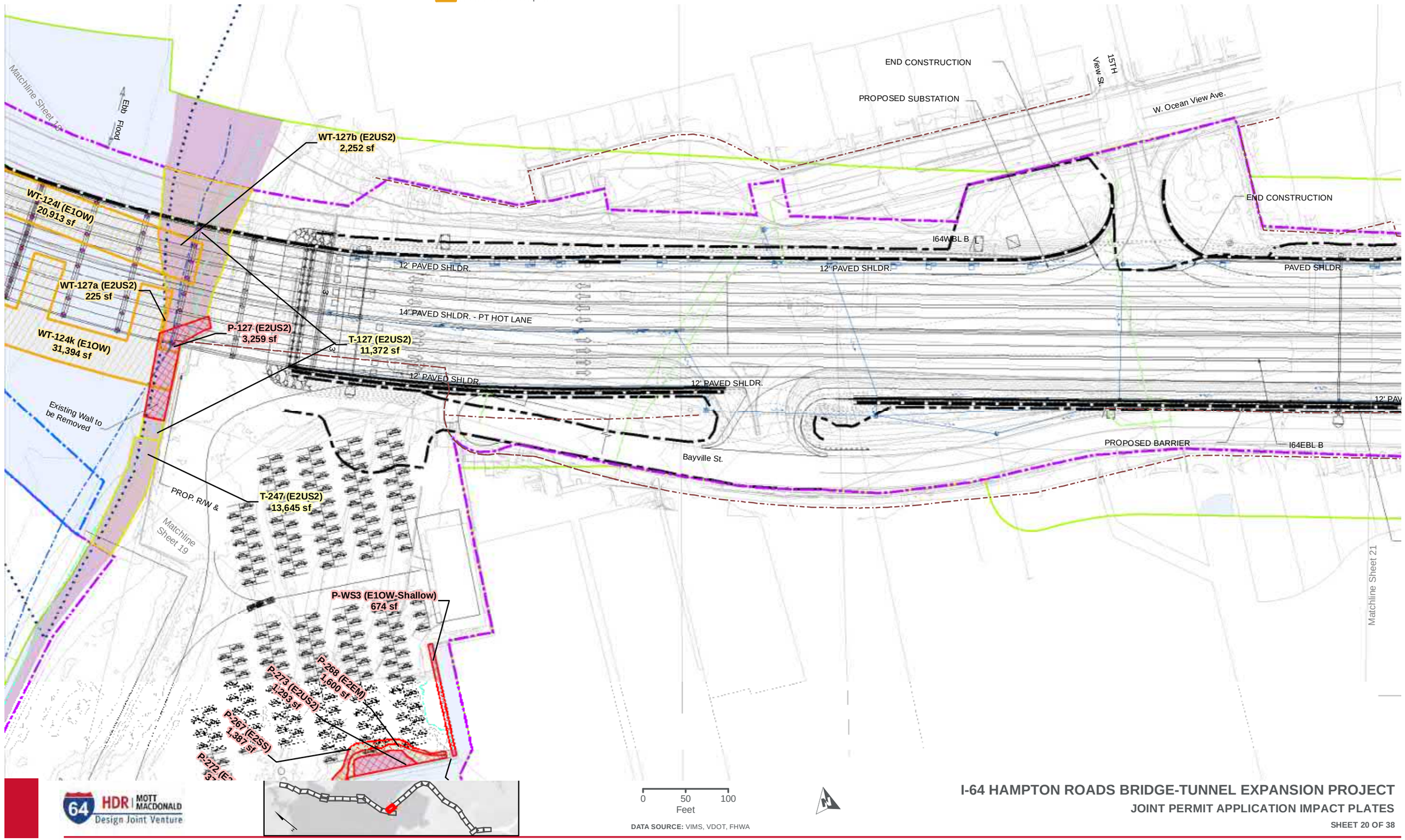

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DECEMBER 19, 2019

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E1OW, Deeper
E1OW, Deep
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E1OW, Shallow
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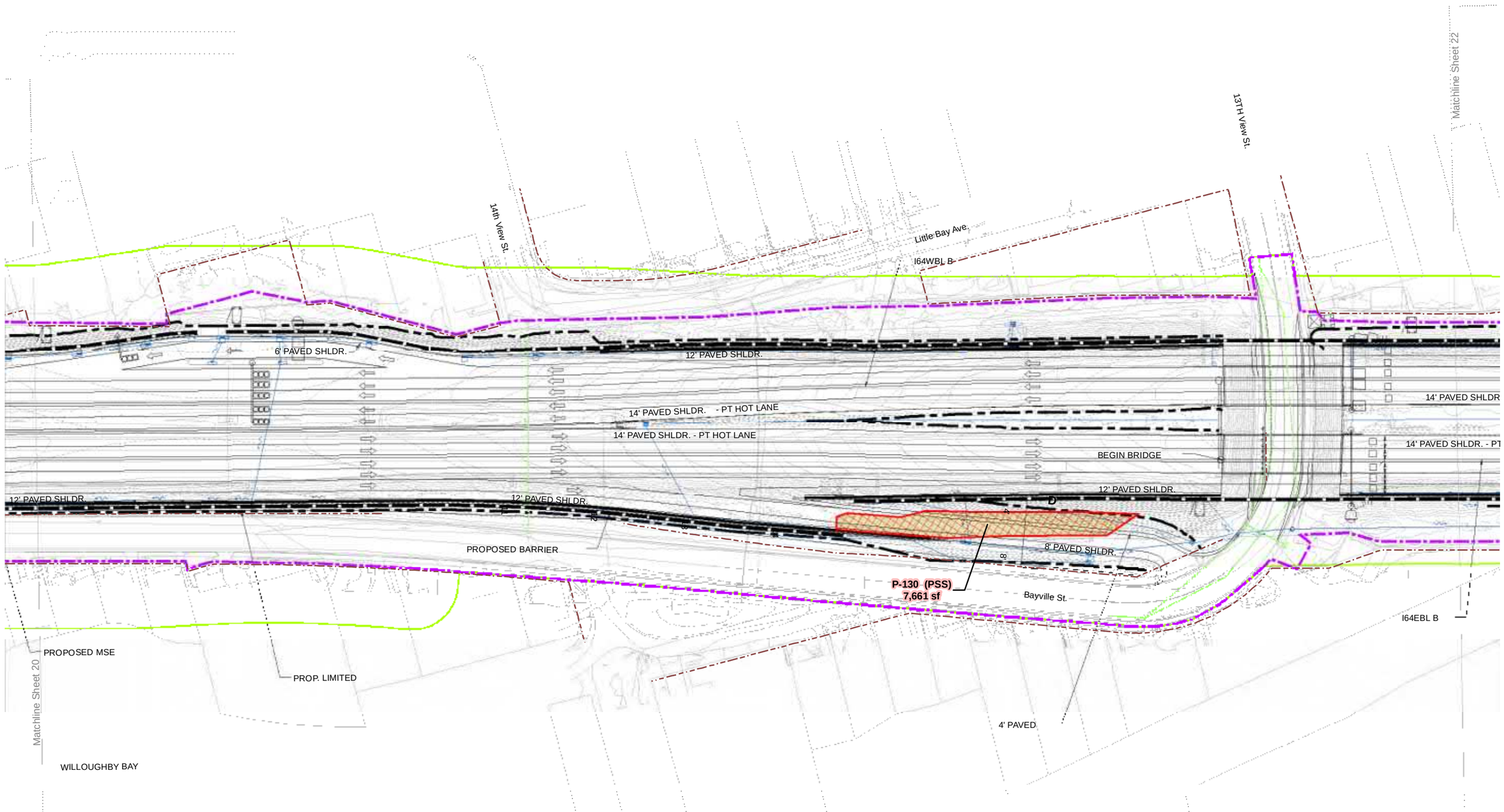

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Design Joint Venture

0 50 100
Feet

DATA SOURCE: VIMS, VDOT, FHWA

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Additional Info/Revision
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Permanent Impact
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E1OW, Deeper
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E2RS2
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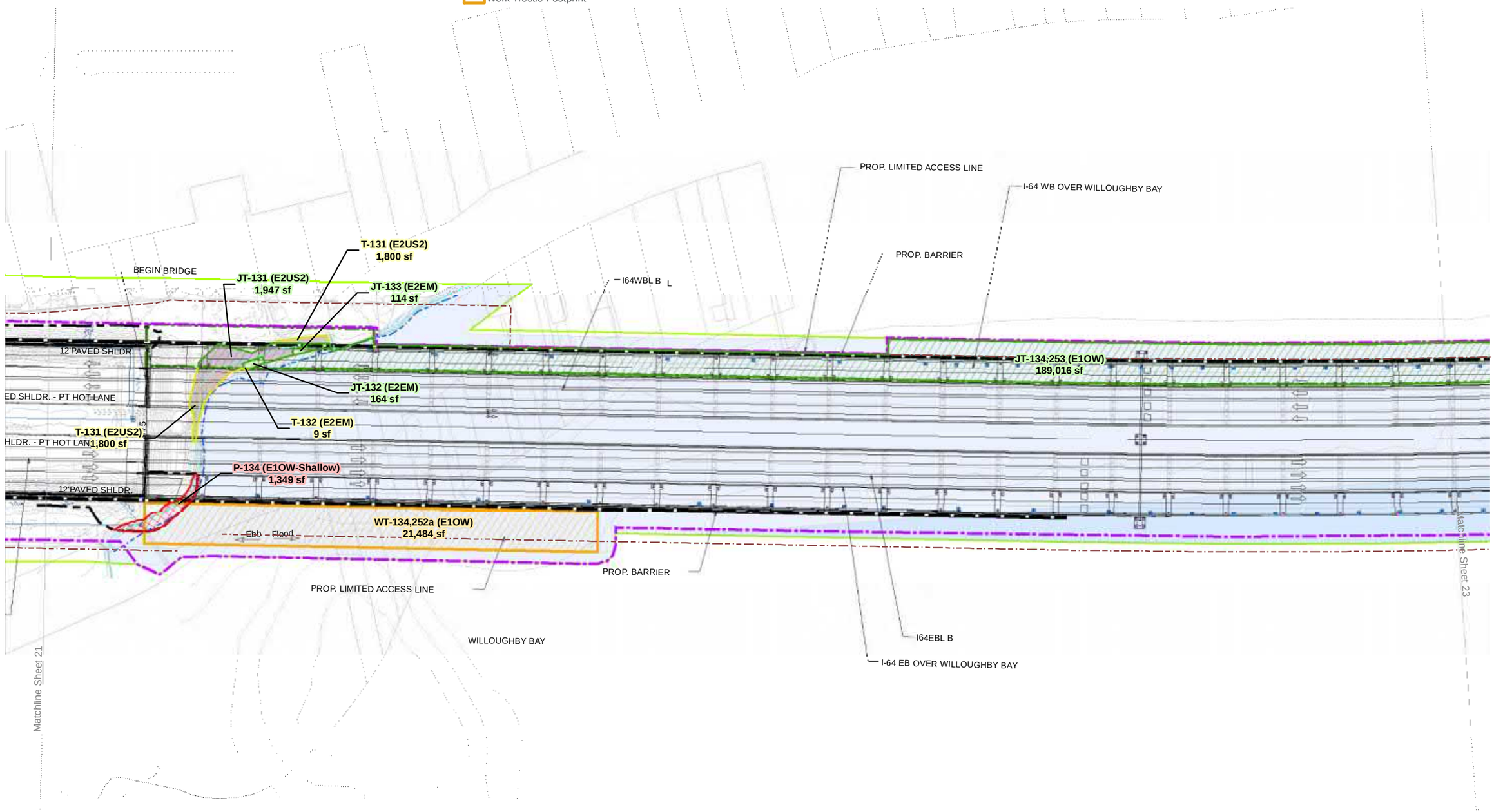

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Feet

DATA SOURCE: VIMS, VDOT, FHWA

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DECEMBER 19, 2019

Additional Info/Revision
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Permanent Impact
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E1OW, Deepest
E1OW, Deeper
E1OW, Deep
E1OW, Mid-Depth
E1OW, Shallow
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E2RS2
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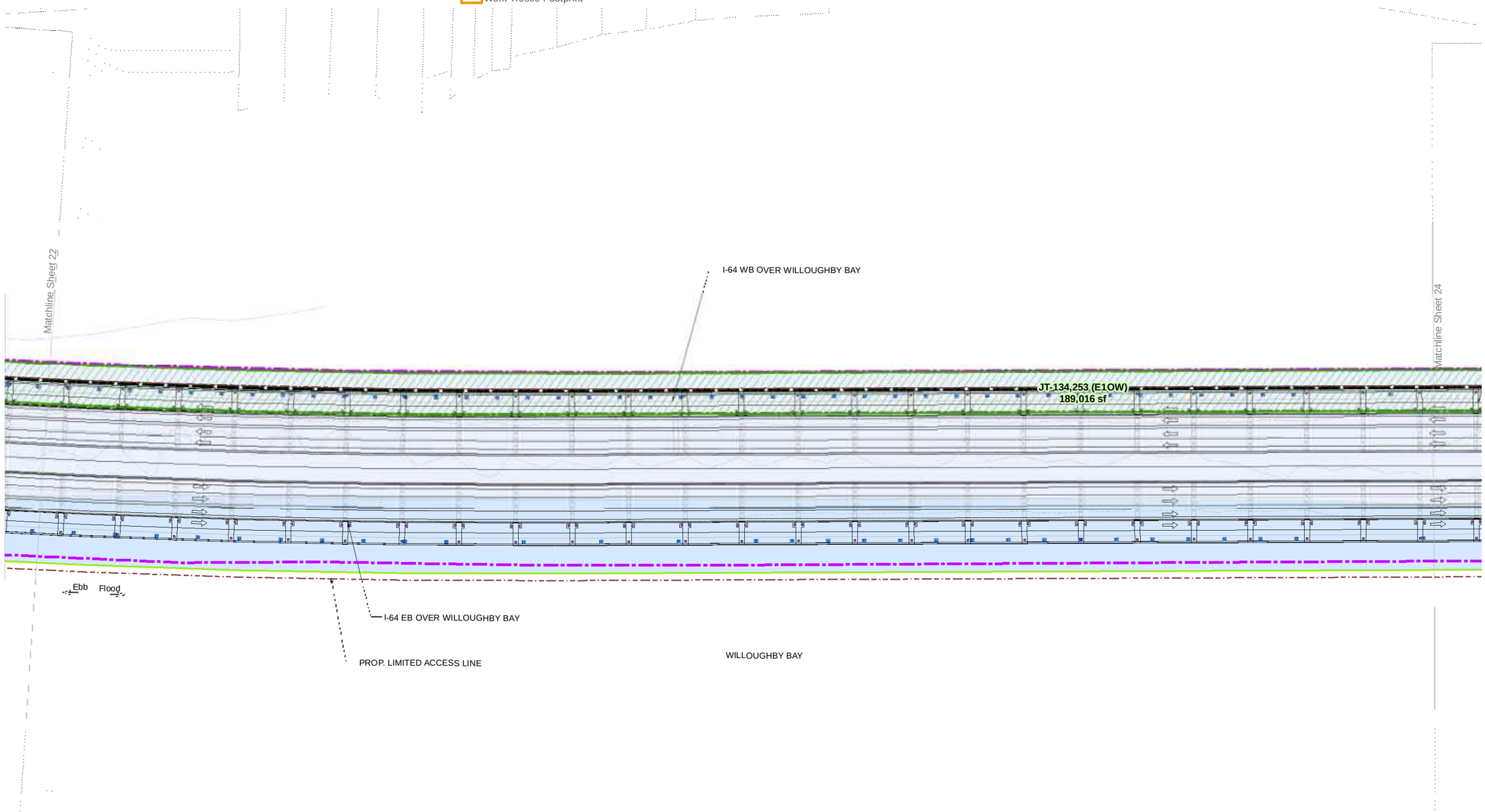

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DATA SOURCE: VIMS, VDOT, FHWA

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

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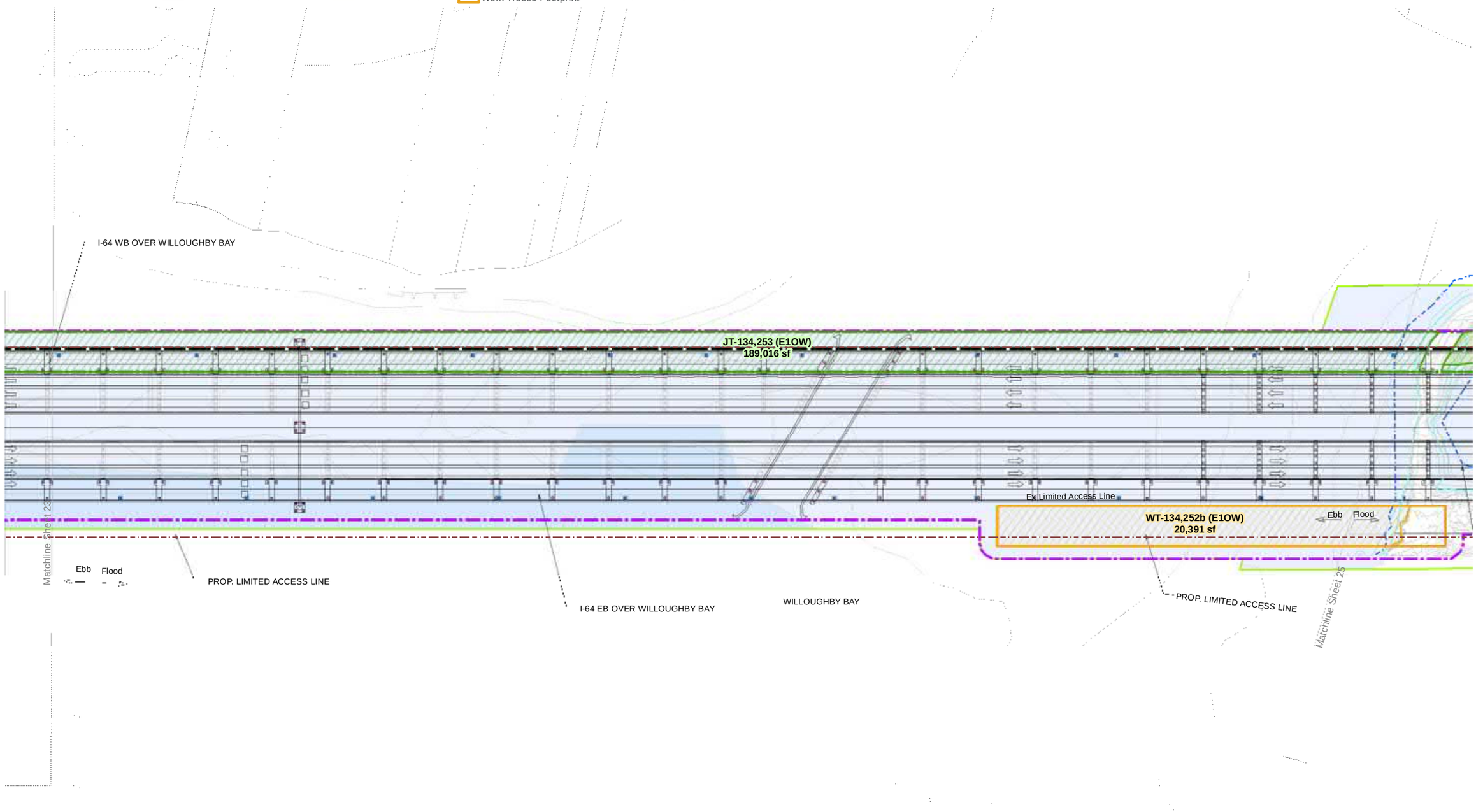

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DATA SOURCE: VIMS, VDOT, FHWA

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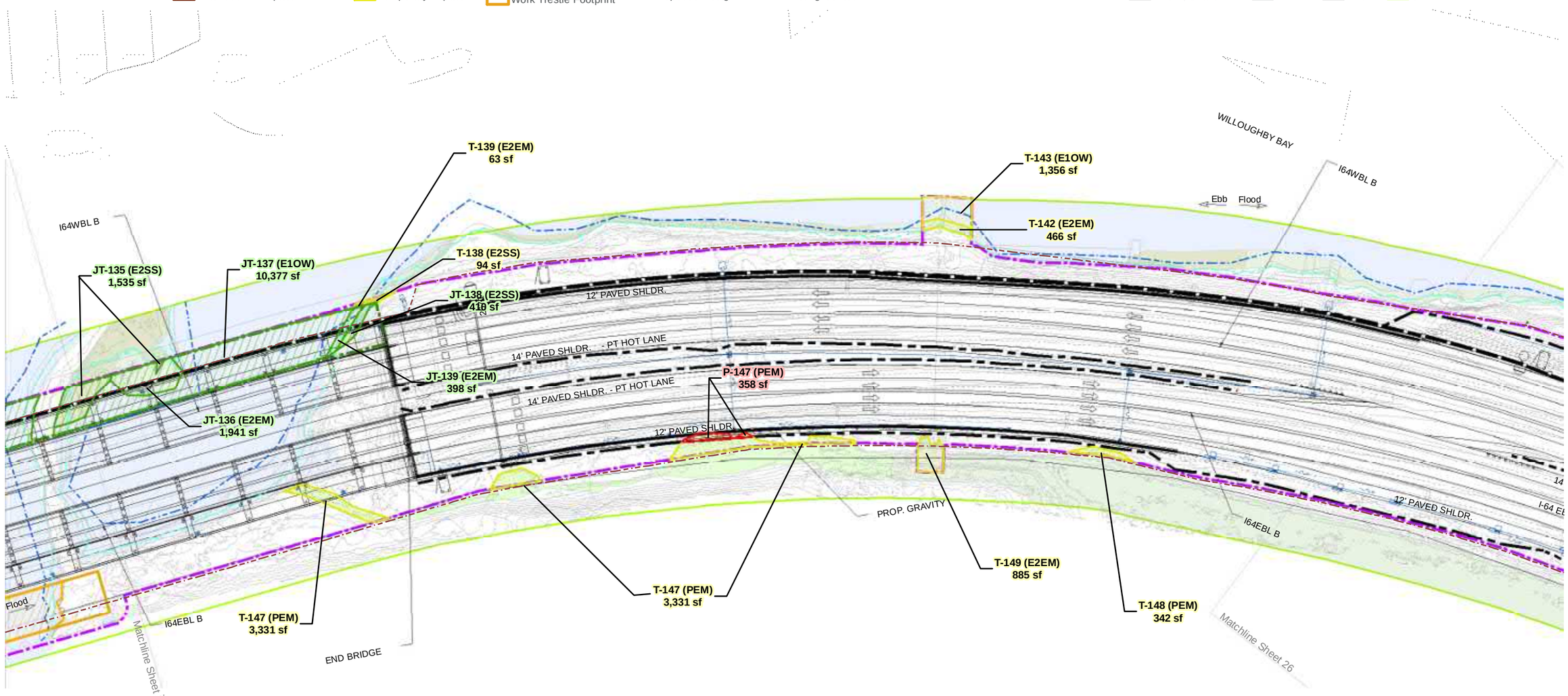

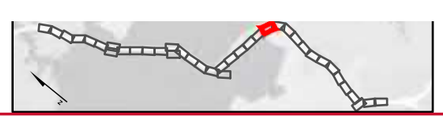

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DATA SOURCE: VIMS, VDOT, FHWA

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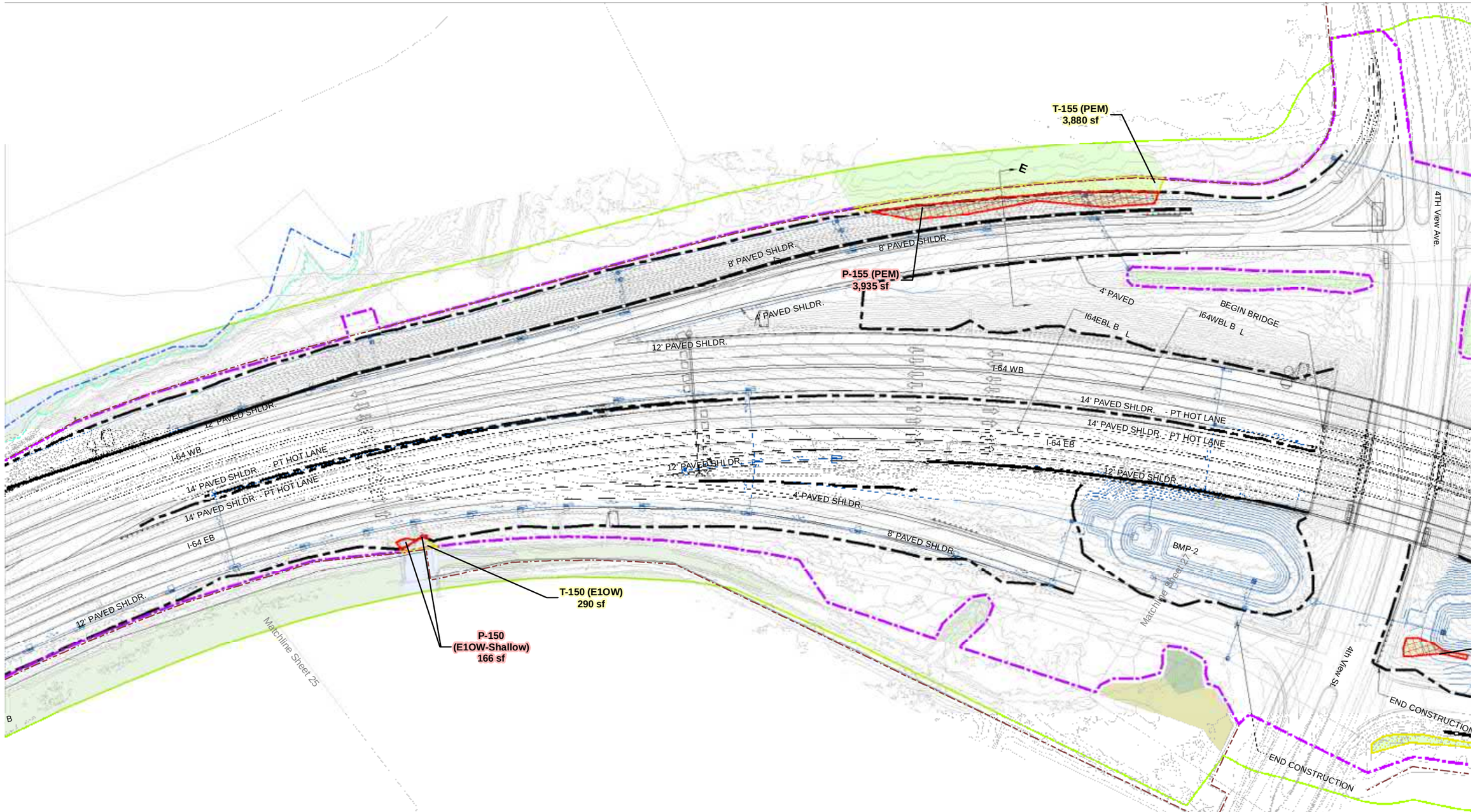

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DATA SOURCE: VIMS, VDOT, FHWA

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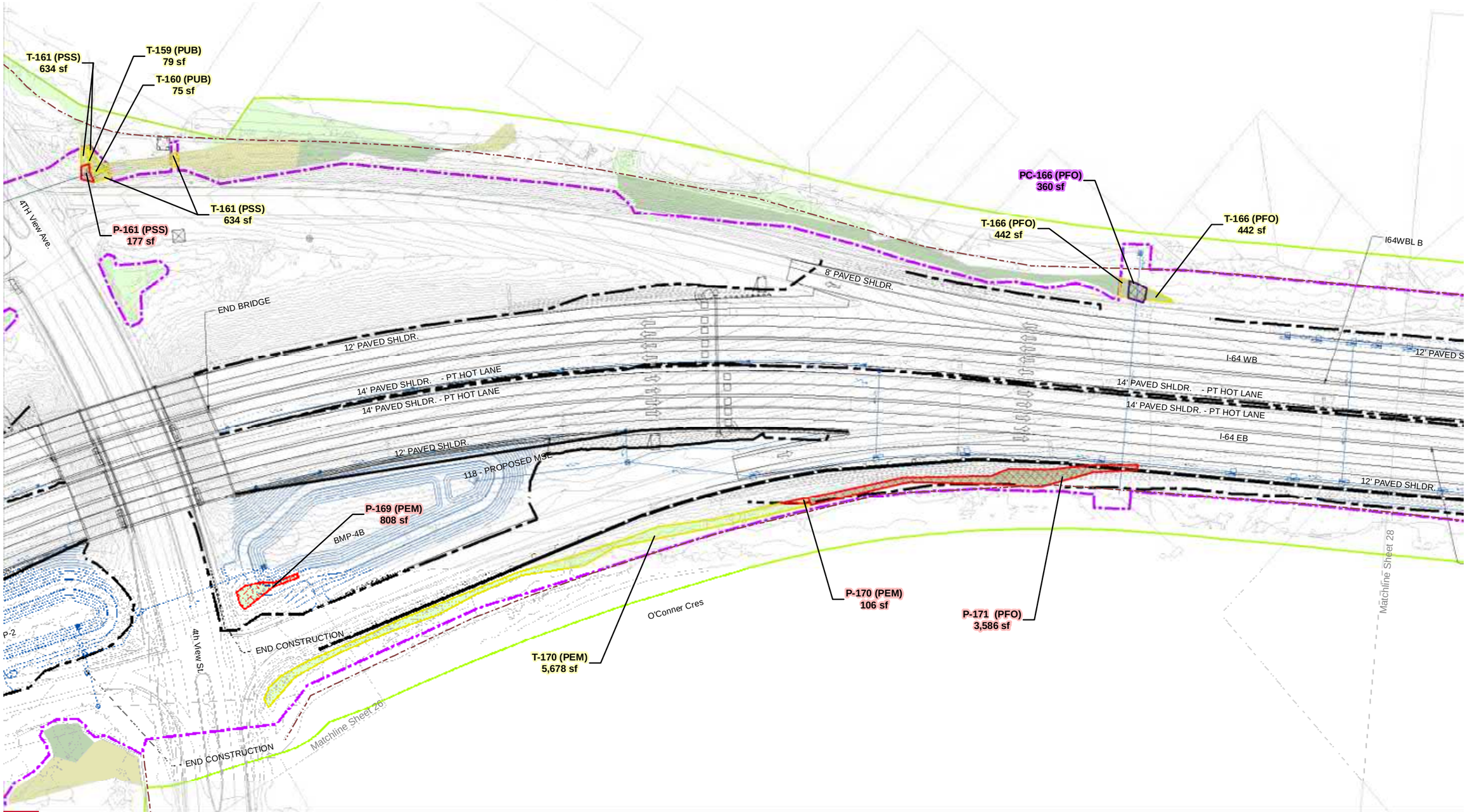

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DATA SOURCE: VIMS, VDOT, FHWA

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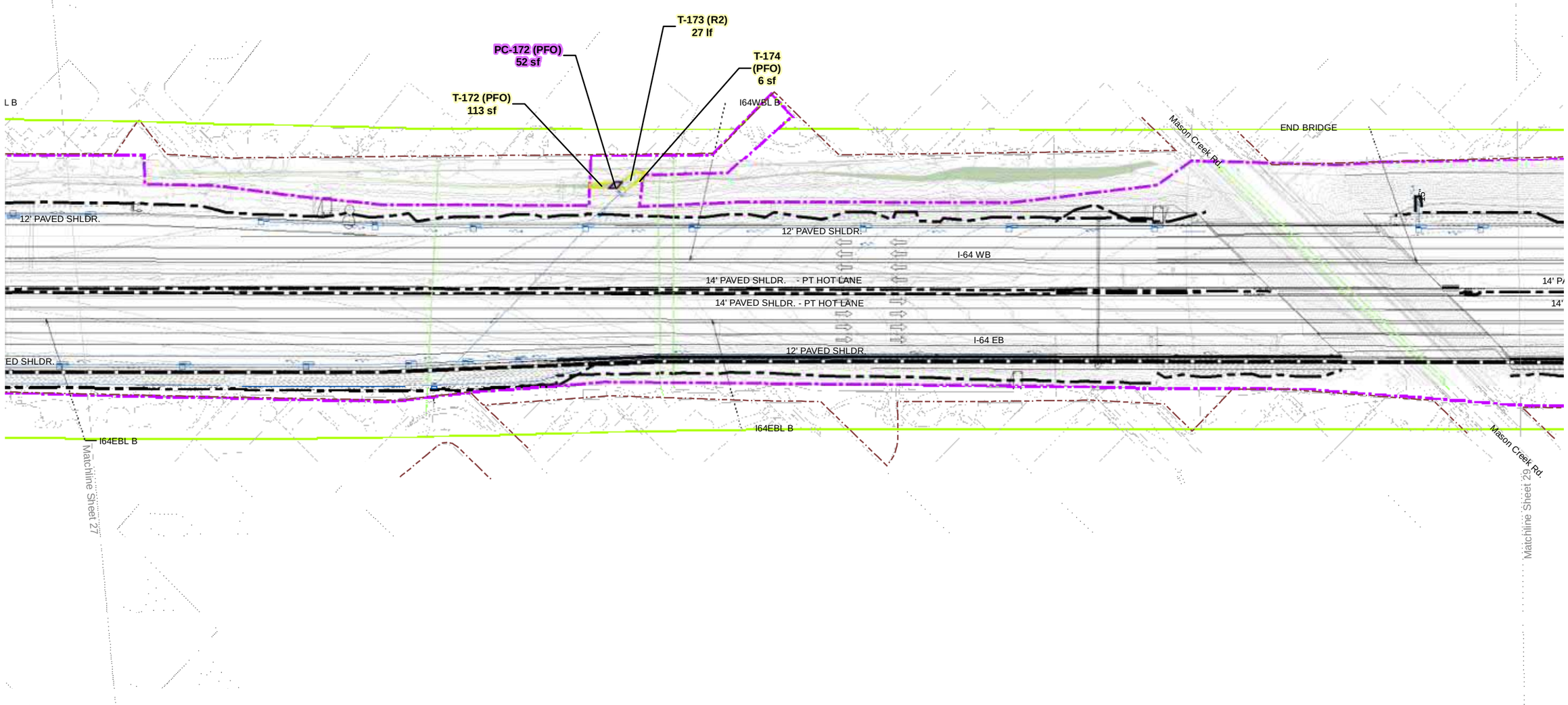

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DATA SOURCE: VIMS, VDOT, FHWA

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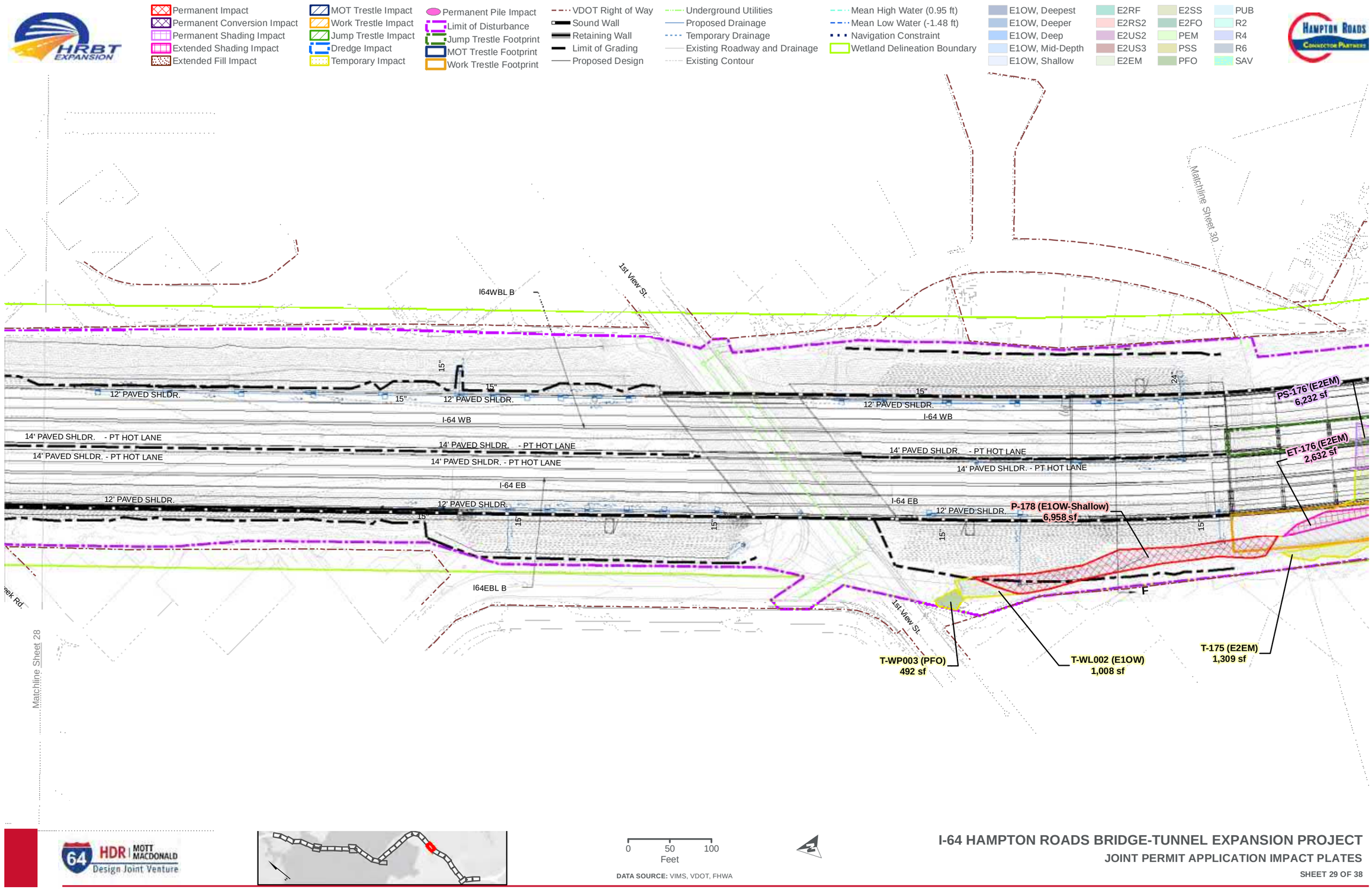

DATA SOURCE: VIMS, VDOT, FHWA

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I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

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E2US3
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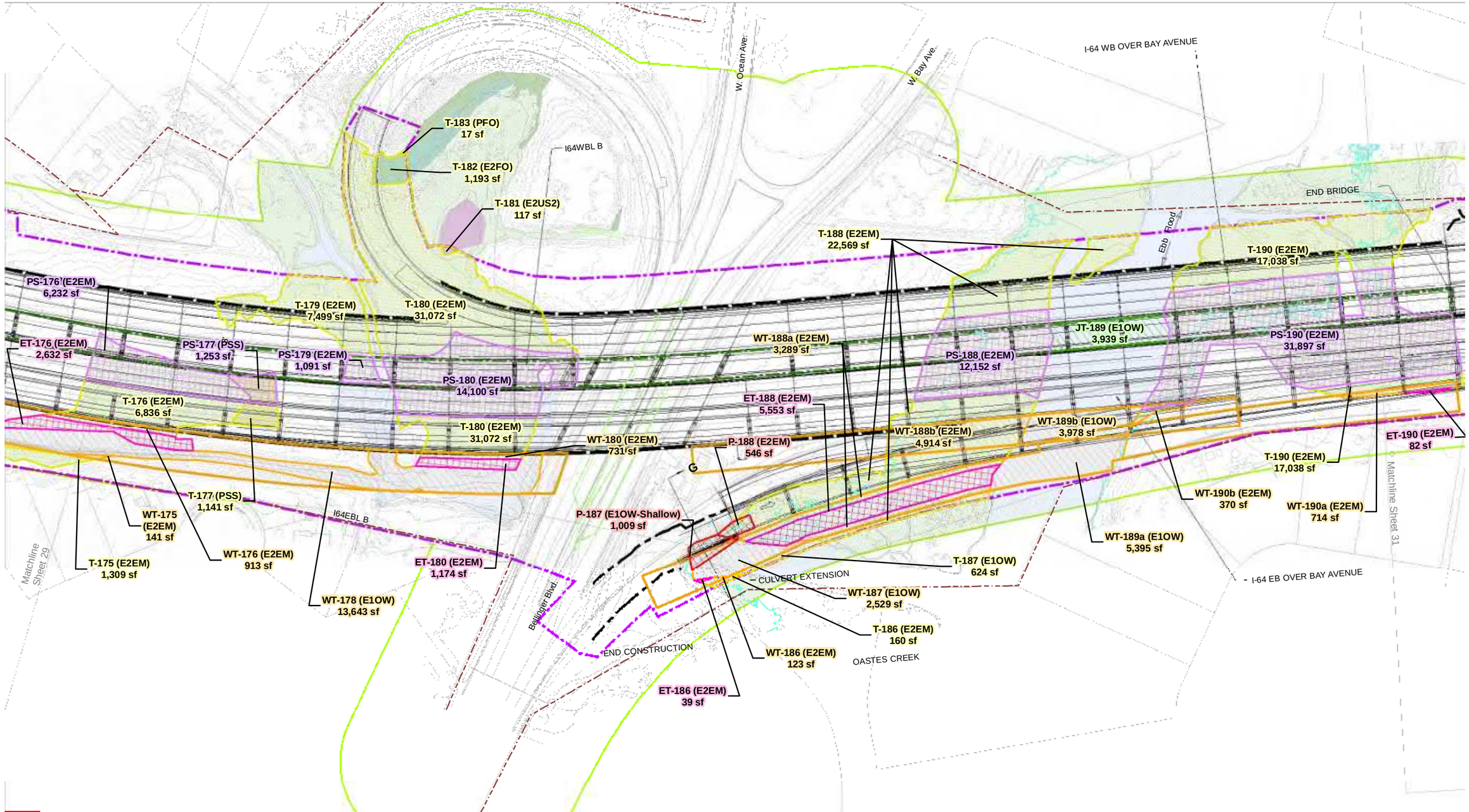

HDR | MOTT MACDONALD
Design Joint Venture

0 50 100
Feet

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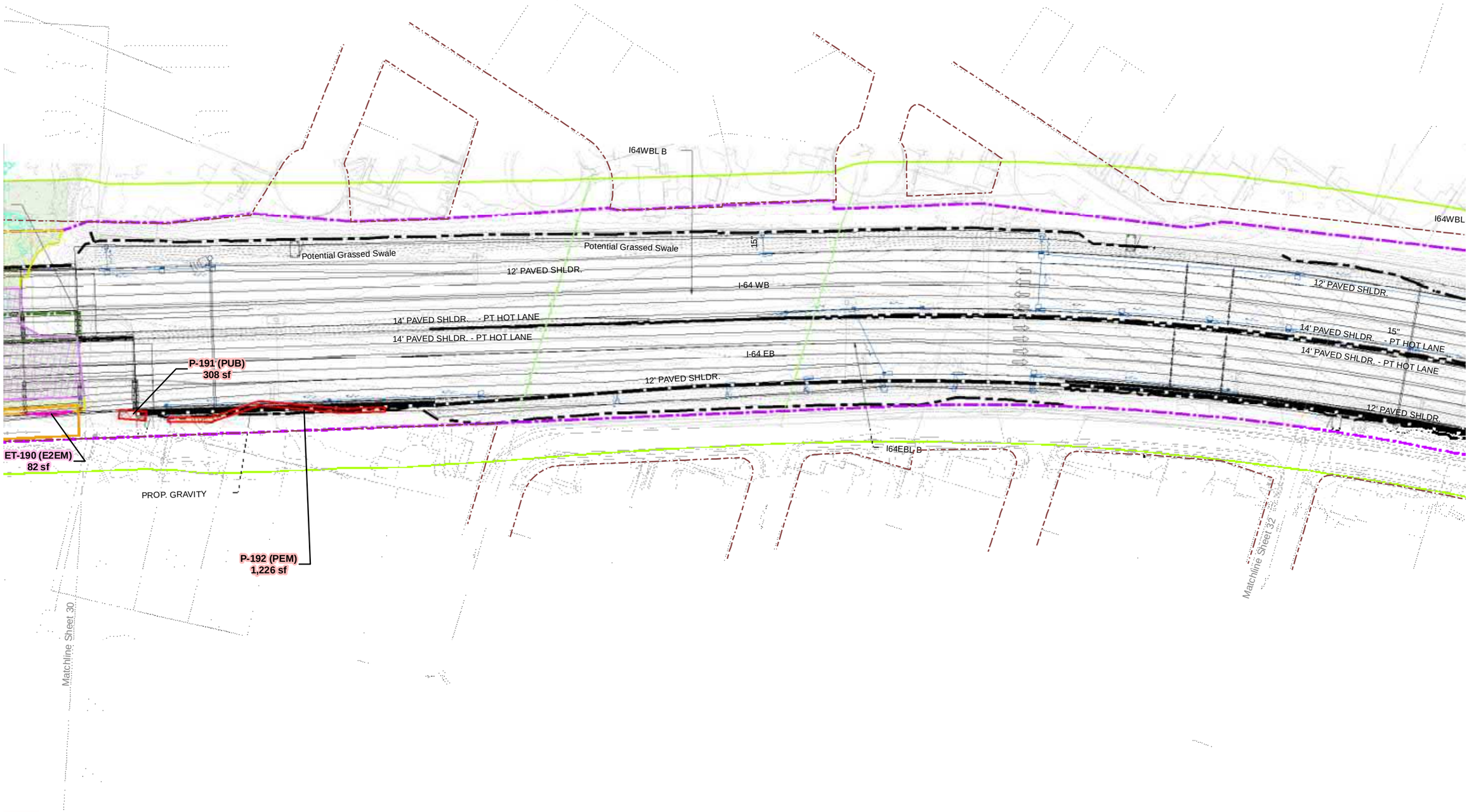

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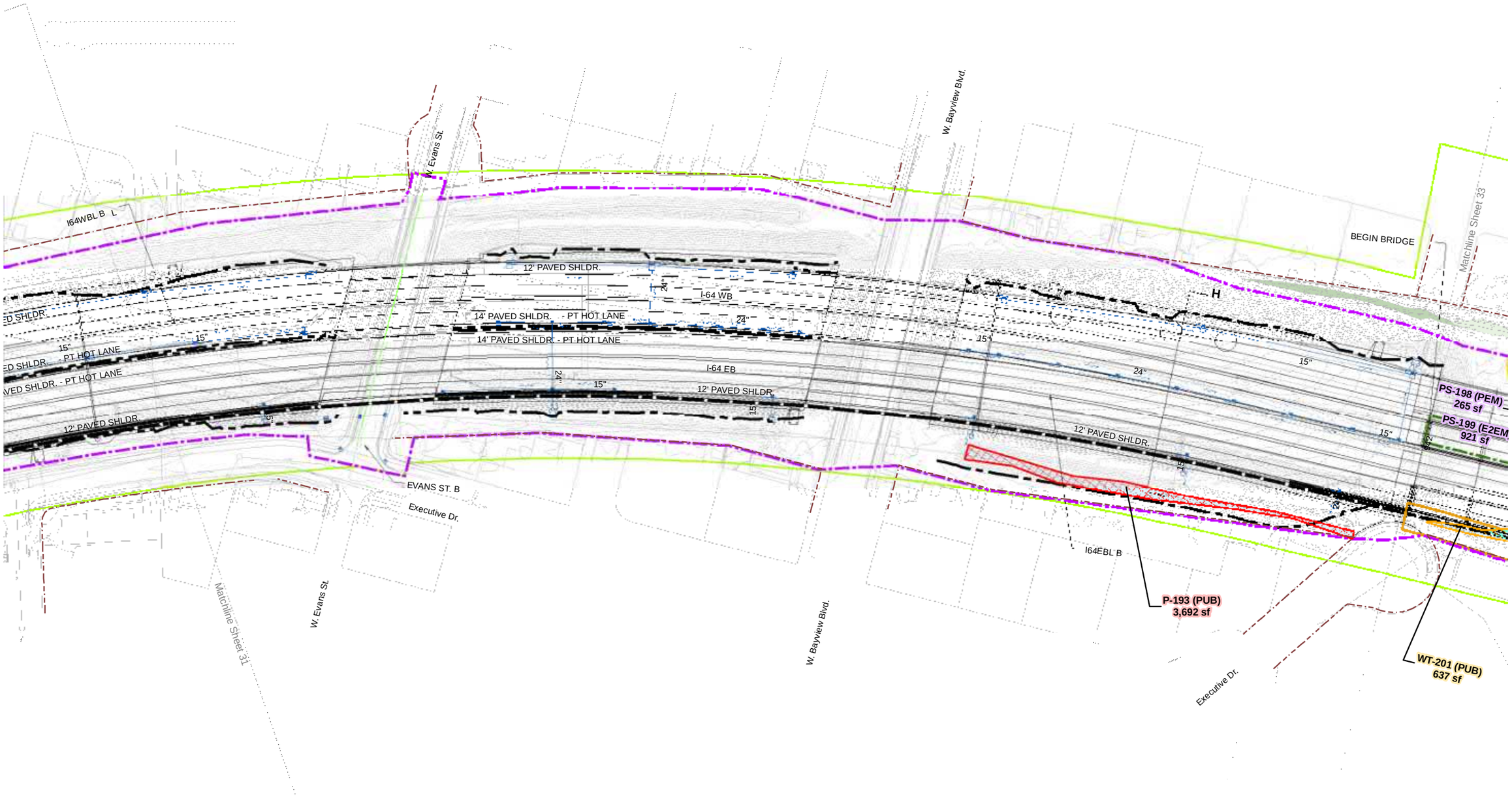

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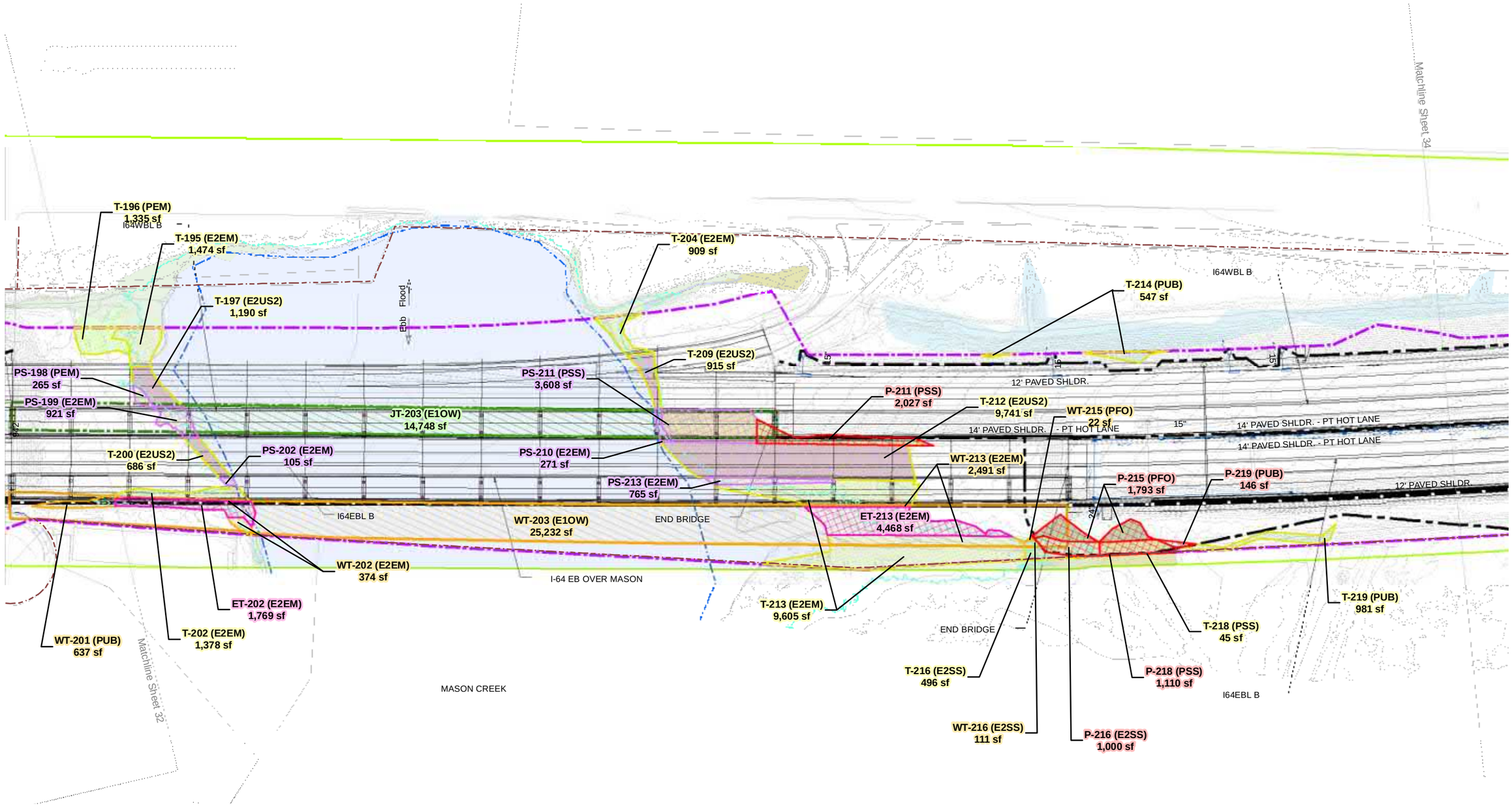

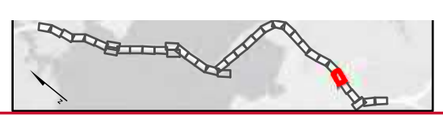

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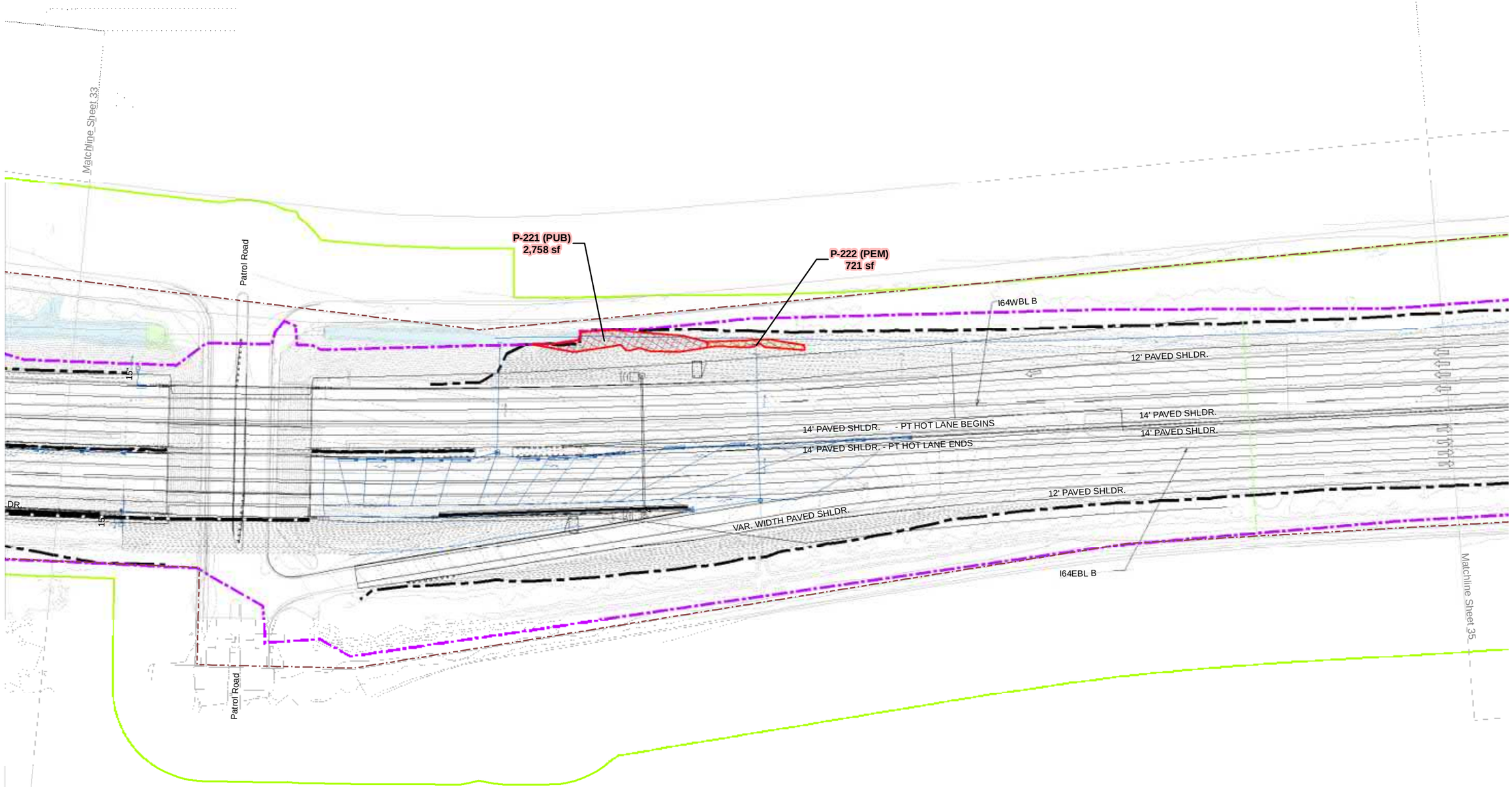

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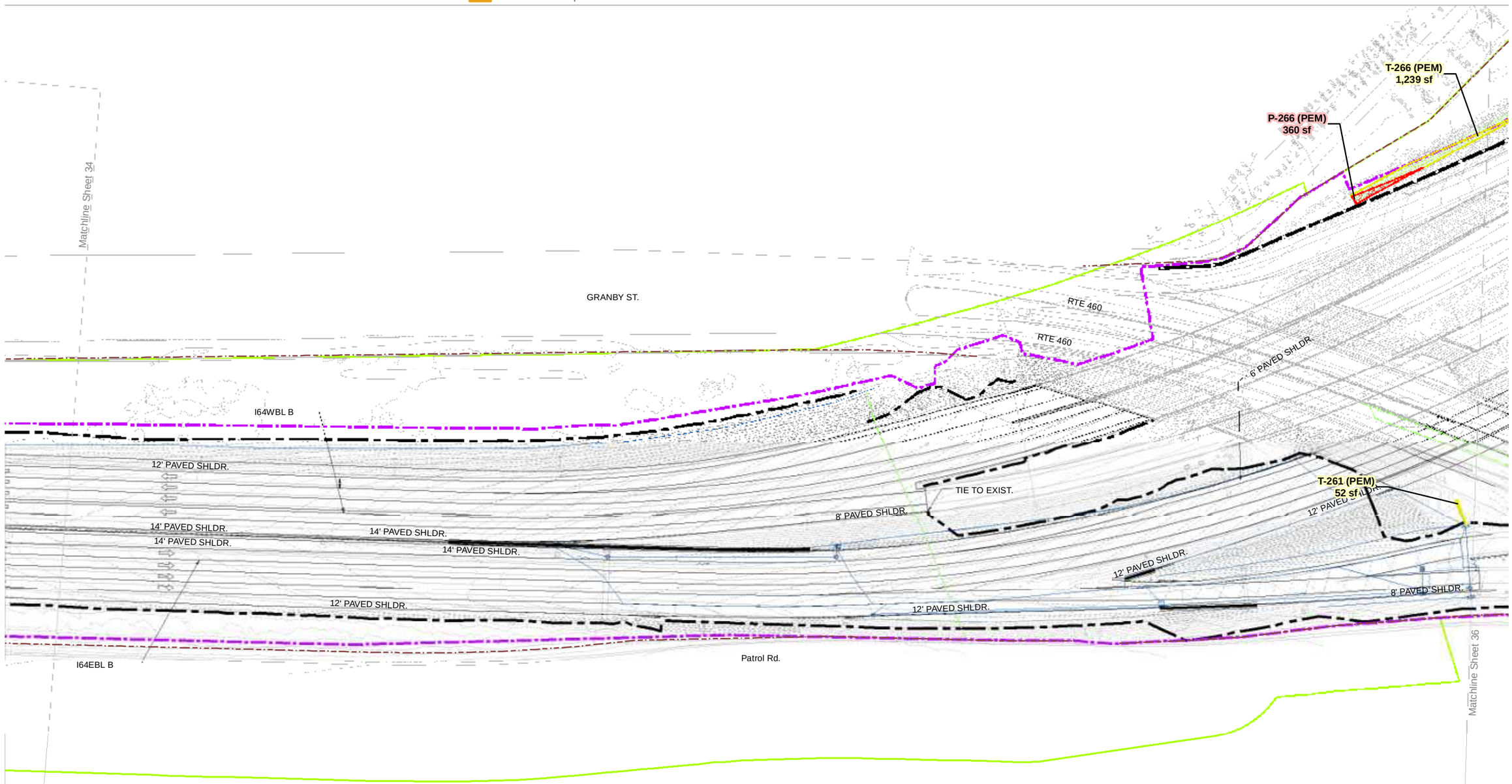

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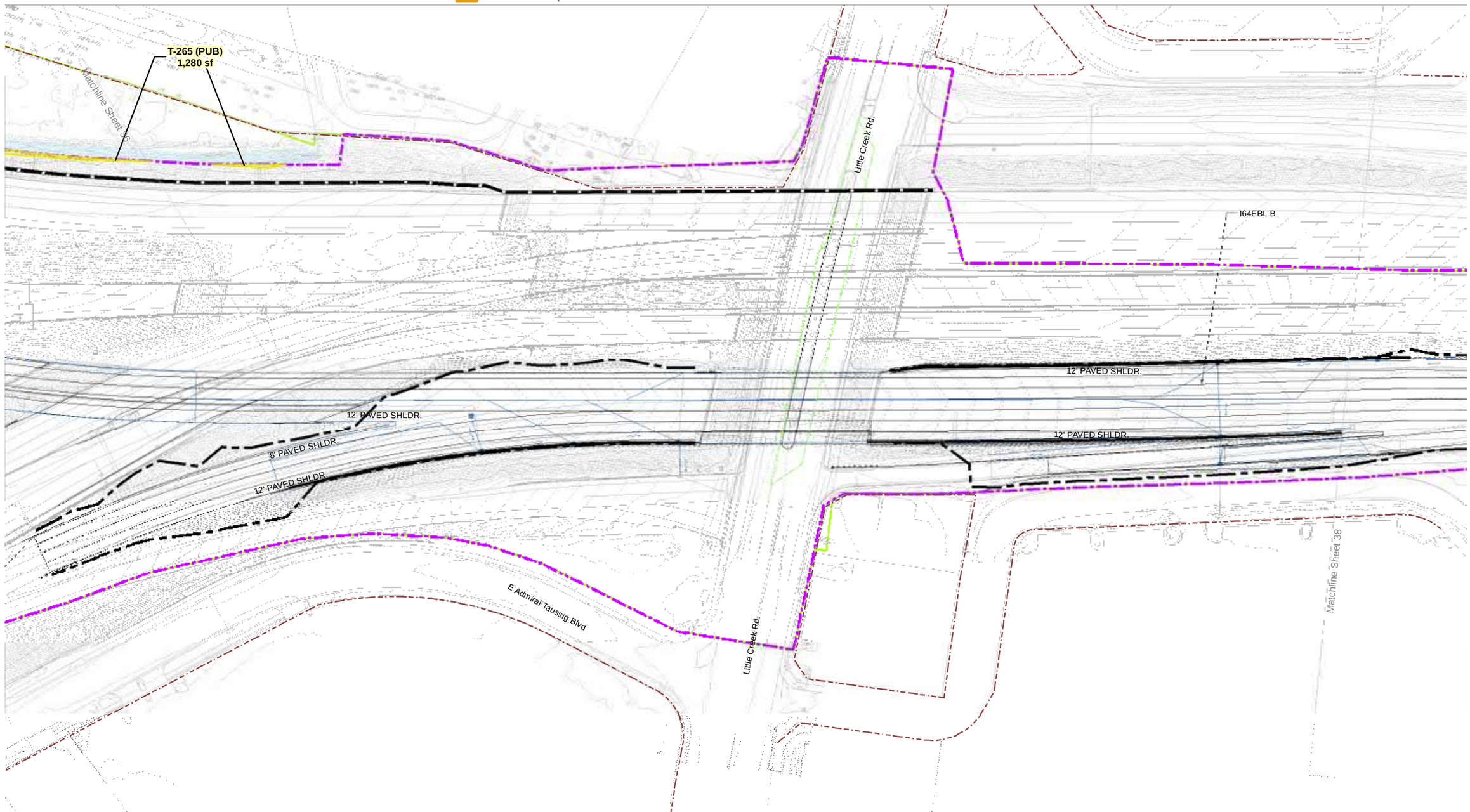

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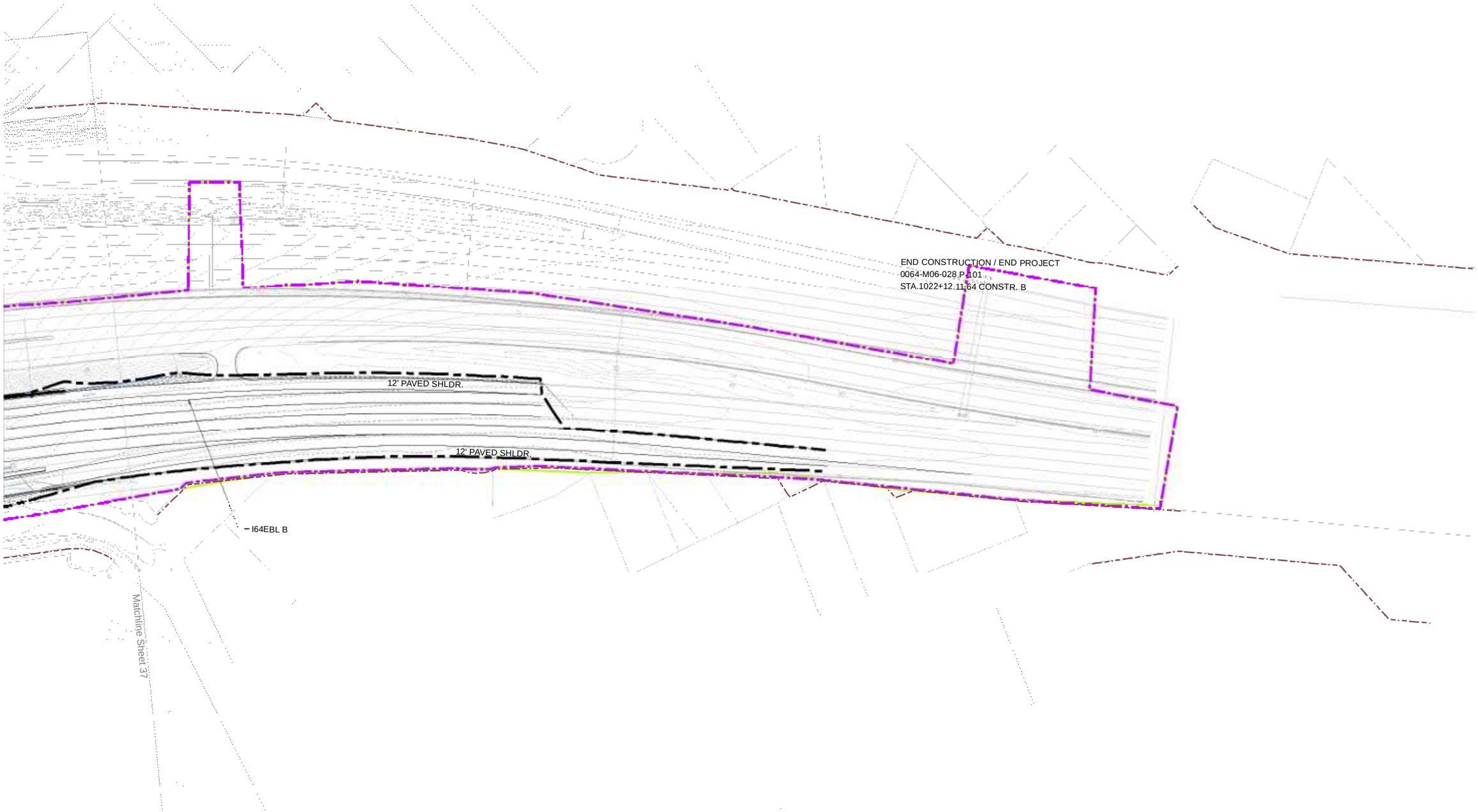

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